

JUNE 12, 1937

Railway Age

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1937

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1937

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Regulation of Labor Unions

Certain labor union leaders and other radicals are, by their policies, presenting squarely to the American people the question whether they will have economic issues of vital importance settled by peaceful and legal democratic means or by private force. The Wagner Act is plainly unfair to employers, but John L. Lewis and his Committee for Industrial Organization are showing that they prefer using force to seeking their ends even under the Wagner Act. This act requires collective bargaining by employers and employees to settle disputes and prohibits any interference by employers with selection by employees of persons to represent them in bargaining. In case of question regarding who is authorized to represent employees, it provides for supervision of elections of their representatives by the National Labor Relations Board.

In not a single important instance, as far as we know, has the Lewis organization, in its efforts to unionize the automobile, steel and other large industries, sought an election of employees' representatives as provided by the Wagner Act. Its practice has been to demand contracts of employers recognizing it as the sole bargaining agency for their employees. When this has been declined, it immediately has started sit-down or walk-out strikes and established picket lines to apply pressure not only to recalcitrant employers but to employees showing a desire to continue working or a disinclination to joining C.I.O.

Labor and Government Ignore Wagner Act

The independent steel companies are acting entirely within their lawful rights even under the unfair Wagner Act in refusing to sign contracts with C.I.O., at least until elections have been held by their employees resulting in selection of C.I.O. as their bargaining representative. But does C.I.O. in consequence demand employees' elections under the Wagner Act? Does the National Labor Relations Board demand them? On the contrary, they both ignore the provisions of the Wagner Act, while C.I.O. resorts to force to compel employers to recognize it. In Chicago it organized a mob to drive out men working in the plant of the Republic Steel Corporation. The mob attacked the police guarding the plant, and a few persons were

killed and several injured. In this instance government protected property and men working; but in most instances it has not done so. The government of the United States has not only not tried to get C.I.O. to abide by the Wagner Act and failed to condemn labor unions' disregard of it, but it has refused to let its mail service carry food to men in strike-bound plants. It is, in fact, plainly backing the Lewis organization both by action and inaction, and ignoring its own laws, including the Wagner Act, in order to do so.

Duty of Government

Widespread continuance of such developments can lead only to (1) the use of private counter-force against private organizations now using force or (2) creation of a public sentiment that will cause changes in government policies that will bring under government control all private organizations now resorting to force. The apparent assumption of many labor union leaders and other radicals that "labor" has "rights" that other classes have not, and that leaders of labor unions are charged with enforcement of these "rights" by means that leaders of other classes cannot morally or legally use, is unacceptable in any civilized society. No person or class has any rights in any civilized society that every other person and class does not have, or any right to enforce rights in any way the use of which by other persons and classes is not equally justifiable.

It is the duty of government to suppress the use of force by any person or organization excepting itself. When government fails to do this it invites and justifies the use of counter-force by those who are attacked. If labor unions, with the approval and support of government, are going to constitute themselves private armies to enforce their demands, then those not disposed to yield to their coercion will have to raise private armies of their own—as they actually have done in more than one country.

Irresponsibility of Labor Unions

What government in this country must do, if industrial disputes are not to be thus submitted to the

arbitrament of private force, is rapidly becoming very plain. It will have to adopt a policy of treating employees and employers alike. Many labor leaders and labor unions already have great power and are seeking much more. Because power without responsibility is certain to be abused it is a serious menace to all that its abuse may affect. Every powerful labor union in this country today possesses its power without any corresponding responsibility—in fact, without any actual responsibility at all. Many of them have far more power than any private company; but while all large private companies are incorporated, and therefore subject to government supervision of elections of their directors and officers, and in many cases to government regulation of most or almost all of their activities, no labor union, however powerful, is incorporated or subject to government control.

Nobody but their leaders knows whether the election of officers of labor unions is honest, or therefore, whether their leaders actually represent their members. Nobody excepting their leaders knows how much or by what means money is raised by labor unions or how it is spent. Their leaders adopt policies of vital importance without consulting their members. For example, the heads of all the railway labor unions excepting two committed them to advocacy of government ownership of railways and proceeded to use their funds for this purpose without even consulting their members. The C.I.O. is demanding "contracts" from employers, and there are many so-called "contracts" with labor unions in existence, but while enforceable against employers they are of absolutely no value to employers because no such "contract" is, as a practical matter, enforceable against a union, its officers or its members.

"Contracts" Worthless to Employers

Under the provisions of such laws as the Railway Labor Act and the Wagner Act employers are required under penalties to engage in collective bargaining with their employees and to carry out bargains if made; but the employees may at any time with entire impunity repudiate or tear up the so-called "contracts" and sit down or walk out. There already have been numerous instances of employees sitting down or walking out in entire disregard of so-called "contracts" made in their behalf by C.I.O. The greatest and most expensive nation-wide strike in railway history—that of the shop crafts in 1922—was called by labor union leaders in protest and defiance of a wage award made after full hearings by a government board.

It is silly to talk of such legislation as the Railway Labor Act and the Wagner Act as measures that will establish and maintain industrial peace by doing justice between employer and employee. They will never do so because they do not impose equal, and equally enforceable, responsibilities and duties upon employers and labor unions. The only way to impose and en-

force equal responsibilities and duties will be to require labor unions to incorporate and make them, their officers and their members equally liable with other corporations, their officers and their stockholders for legal management of their affairs and especially for full compliance with the contracts they make with employers. This should have been done long ago. As more and more labor is unionized and more unions acquire great power, it will become more imperative for the protection of the public that it shall be done.

British Industrial Disputes Act

It is only a matter of time, if developments of the current kind continue, until a powerful public sentiment will demand this. It may even demand and enforce compulsory arbitration. The labor unions in Great Britain thought they were strong enough to dictate to the British public, but their general strike in 1926 was promptly followed by the passage in 1927 of the British Industrial Disputes Act. The following summarizes its provisions:

"1. A strike or lockout is illegal (and it is illegal to commence or support one) if (a) the object is other than in furtherance of a trade dispute in the industry in which the strikers or employers locking-out are engaged; (b) designed to coerce the government directly or by inflicting hardship on the community.

"2. Persons refusing to participate in an illegal strike or lockout shall not be denied the rights or advantages usually accruing to them in trade unions or societies by reason of such refusal.

"3. Declares picketing is illegal if done in such numbers or such manner that it is likely to intimidate workers or to cause any disturbance. Penalties for violation are provided.

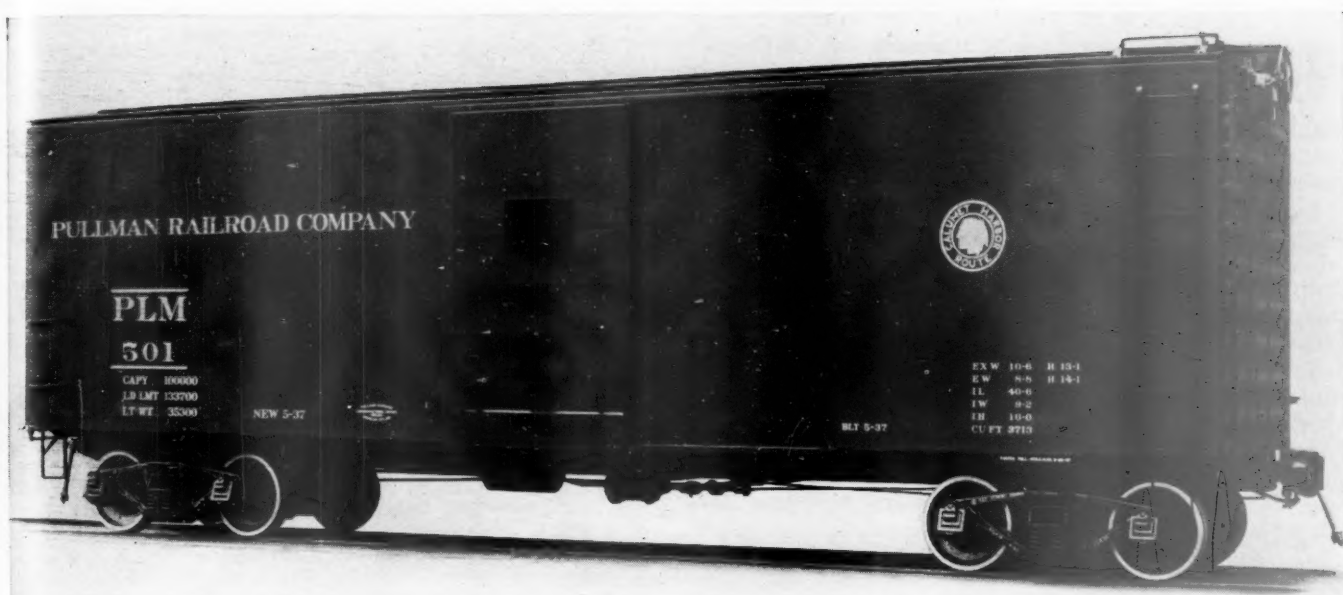
"4. It is illegal to require any member of a trade union to make any contribution to a political fund of a trade union unless he has formally notified the union of his willingness to do so. A separate accounting of political contributions and funds must be kept by the union and reported to the government.

"5. Penalties are provided for persons who break a service contract with a public authority with reason to believe that it will cause injury to the community.

"6. The Attorney-General, as well as any person having sufficient interest in the relief sought, may obtain an injunction restraining the application of trade-union funds in support of an illegal strike."

Significant Situation in Great Britain

It is a significant fact that almost ever since the general strike of 1926 occurred, Great Britain has had a conservative government and that labor union leaders have been fearful of adopting radical policies lest public sentiment will demand even stricter legislation than the Industrial Disputes Act. It is not probable that the labor leaders who are now in the saddle in this country will be warned by the experience of their brethren in England, but if wise they will be. They and their radical political supporters are following a course which is much more likely ultimately to cause labor unions to be subjected to strict government control than, as they seem to expect, to cause government to be subjected to labor union control.



Pullman-Standard 50-Ton Welded Alloy-Steel Box Car

Pullman-Standard Builds Light But Strong Box Cars

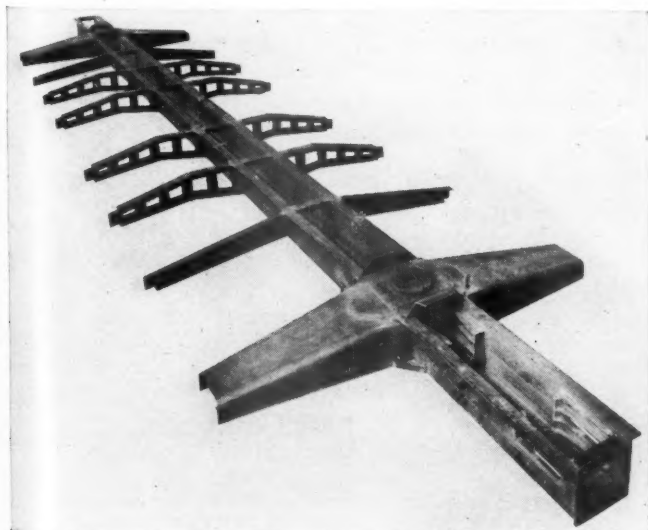
Fabricated of alloy steels by the latest improved welding technique
— Merit of general design already proved in 20,000 miles
of test service

A NEW 50-ton light-weight all-welded alloy-steel box car, of the same dimensions as the proposed standard A.A.R. box car, but almost 10,000 lb. lighter in weight, has just been completed by the Pullman-Standard Car Manufacturing Company, Chicago, and will be exhibited at the June convention of the Me-

chanical Division at Atlantic City, N. J. The car weighs 35,300 lb., light, which may be compared with 45,200 lb. for the A.A.R. car, or 48,200 lb. for the average conventional box car now in service. The car is built well out to clearance limits for unrestricted service and has a cubic capacity of 3,712 cu. ft., based on a minimum interior height of 10 ft. This gives a light weight of 9.53 lb. per cu. ft. The ratio of maximum revenue load to total weight on rail is 79 per cent.

The new Pullman-Standard car is the latest contribution of this car building company to light weight railway freight equipment. It utilizes relatively high-tensile alloy steels only insofar as the weight saving can be effected without appreciable increase in overall cost. The car naturally represents some improvements in design and construction over the first car of this general type which was built by Pullman-Standard early in 1935 and described in the *Railway Age* of June 22 for that year. It incorporates, for example, the latest developments in welding practice, whereby special welding machines with accurate, simplified control assure uniformly high-quality welds at high production speeds and low unit cost. The initial welded alloy-steel car, however, may be said to have demonstrated the merit of the design, for it is reported to have been operated over 20,000 miles under all conditions and in all parts of the country without repairs or the necessity of being held out of service for any mechanical defect.

The new Pullman-Standard welded alloy-steel box car has a nominal capacity of 50 tons and an interior reve-



Welded Alloy-Steel Underframe Inverted to Show Center-Sill Bracing, Draft Lugs and Back Stop

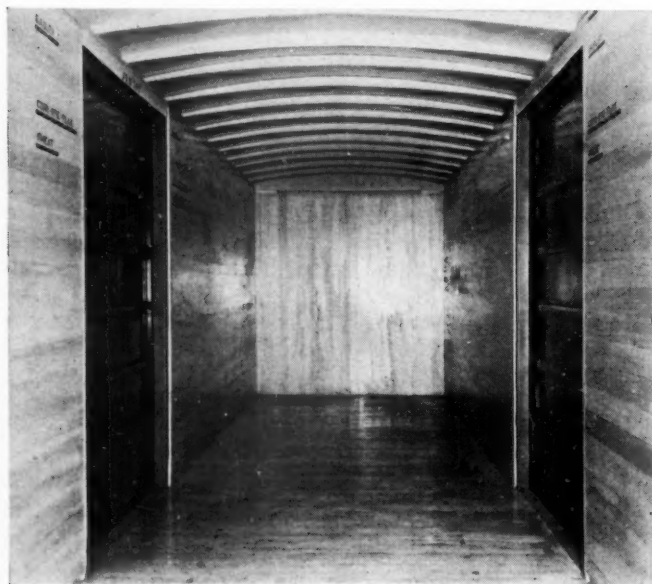
nue space 40 ft. 6 in. long, 9 ft. 2 in. wide and 10 ft. minimum height from floor to roof structure at the side of the car, these dimensions corresponding to those of the vast majority of box cars built in the last year. The underframe of the car is built of high-tensile alloy steel completely welded, as shown in the illustrations. Z-section center sills are used, the two sections being welded together at the top center line, as is customary with this type of sill. The cross sectional area, however, is reduced slightly from that of the standard A.A.R. center sill, which is made of low-carbon open-hearth steel, and could have been reduced still more, with equivalent strength, except for difficulty in rolling the desired thin section of center sill in high-tensile steel. The center sill, as it stands therefore, possesses excess impact or buffing strength as compared with the standard A.A.R. center sill.

The bolster is a box section, welded to the center sill member and reinforced by gussets so that, both as a load-carrying member and as an impact-resisting member, this bolster produces sufficient strength to tie in the side-framing construction and produce the maximum resistance to shifting of the center sill with respect to the super structure under extreme impact. The bolster is of the completely enclosed type, thus preventing any moisture from reaching the interior. The design is said to provide maximum resistance per unit of weight to both vertical and horizontal impact.

The inverted view of this underframe shows clearly the center filler, the welded back stop and draft lugs, as well as the striking member, which are Pullman-Standard developments that have been tested to destruction at Purdue University and show strength considerably in excess of the standard cast-steel and riveted structures. These constructions are covered by patents pending in which a number of claims are said to have been allowed.

The construction at the bottom of the bolster around the center plate in connection with the center filler is a prolongation of the back stop section, and the method of taking care of compressive stresses at the center plate is by means of Z-bar sections which are clearly illustrated.

Crossties, applied as shown and welded to the center sill structure, have been reduced in weight to correspond to the stresses imposed. It will be noted that the cross-bearers are of the built-up welded type, taking maximum advantage of the top and bottom chord members with proper spacing for stiffness in uniting these sections.



The Completed Interior of New Pullman-Standard Box Car



Details of the Underframe and Superstructure Assembly

An unusual feature is the omission of diagonal braces and the substitution of a reinforced gusset welded to the center sill, to the end sill and to the side sill member, thus forming a unit connection between these members which transfers the stresses from the center sill to the sides without concentration or localization.

Car Side Sheets Pressed with Integral Posts

The car sides are made of narrow vertical sheets, 0.05 in. thick, with Z-shaped posts pressed into the edges of each sheet, these posts being reinforced where necessary to control stresses, as indicated by data developed in connection with extensometer and deflectometer tests, and giving due consideration to impact action.

The side sill member is of the A.A.R. conventional type, reduced in cross sectional area consistent with the yield point of the material used and the stresses which have been determined by data developed in the many tests made by Pullman-Standard. The side plate member is a Z-shape with the long leg extending upward and bent over in an approximate horizontal position to provide proper foundation and fastening for the roof. After the side sheets with proper reinforcements have been welded together, they are then spot welded to the side sill and side plate members and to the door post, with proper auxiliary gussets, or connecting members, to develop the full strength of the structure.

The posts are spaced much closer than is the practice followed on the A.A.R. standard box car. This is due to the type of construction and to relieve stresses in the sheets which are half the thickness of those used in the A.A.R. box car. These sides are all built in a jig, as is customary with riveted structures, and present a flush surface on the outside.

At the door opening, attention has been paid to connections through gussets and pressed members to the side sill and side plate and the shape of the door post has been altered to obtain the maximum strength from the material used.

The posts are continuous from side sill to side plate and, at the side plate, a box section form of brace has been used at the door opening to prevent weaving. In addition, the member supporting the roof carlines is continuous from door post to door post and acts to supplement the braced pan box section effect above described.

This construction is designed to take full advantage of all of the material used, prevent localization or concentration of stresses and produce a unit side frame with maximum strength for a given weight.

The Roof and End Construction

As shown in the illustrations, the roof embodies the same general type of construction as the side frames. The Z-shape carlines are a part of the roof sheets, being pressed into them. Where necessary these carlines are reinforced to take care of stresses imposed and they are spot welded to the upper horizontal leg of the side plate member and welded to the carline supporting members, which are in turn welded to the side plate at the bottom of the carline. In addition the brackets on which the running boards are supported are also spot welded to the roof sheets.

The A.A.R. corrugated-type car end is employed. All the sheets except the extreme top are $\frac{1}{8}$ in. thick of high-tensile alloy steel and the end plate member is spot welded to the top section of the corrugated end. The special feature of this end is the corner reinforcing member, which forms, with the corrugated end, a box section post at each corner that is fastened to the side framing by rivets in double shear. Tests of this type of construction have shown a lack of twisting at this position which is one of the causes for end distortion or bulging in other cars. Except for safety appliance rivets, the line of rivets mentioned comprises the only rivets used on this car, being employed because of difficulties, with available equipment, in producing proper spot welds without sheet distortion.

The assembly of side frames, ends and underframes with the exception of the connection between side sheets and ends is by means of arc welding. In all cases the welds are of the butt type, the use of the single fillet weld being eliminated.

The doors are made of high-tensile alloy steel with Pullman-Standard door-lifting device, door starter and door latch. The doors weigh slightly over 300 lb. each and are of the same general construction as that used in connection with the sides and the roof, except for having full box-type instead of Z-section corrugated cross members.

The conventional Type-AB brake is applied, with the exception of substituting a light-weight high-tensile steel reservoir for the usual casting. Another feature is the absence of pipe clamps. The brake pipe, wherever good practice permits, has been welded to the structure which is in line with the procedure successfully followed by Pullman-Standard for some time. Furthermore, in ap-

plying equipment to the underframe, the attachments have been designed for maximum strength with a minimum use of material.

The trucks are of the spring-plankless type, the double-truss side frames being designed in accordance with A.A.R. specifications, using standard grade cast steel. The truck bolsters are A.A.R. Standard, using high-tensile alloy steel. Particular attention has been paid to the use of light-weight brake equipment including brake beams, levers, etc.

The wheels on this car are of the chilled-tread type, made by Pullman-Standard, and are of the new experimental light-weight design. Similar wheels have been in intensive service for over a year and during that time have been giving satisfactory results. The total weight of the two trucks is 14,200 lb.

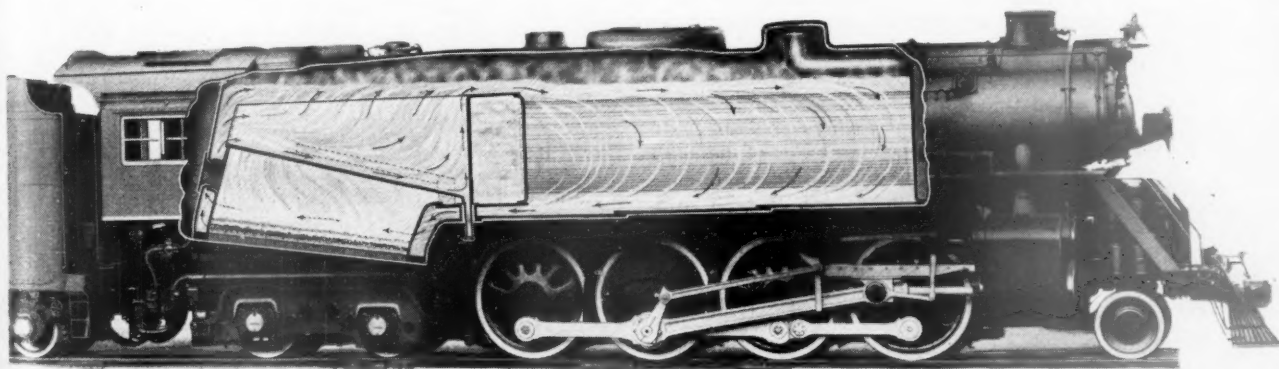
New Principle of Boiler Circulation Demonstrated

THE Downflow Syphon Company, Cleveland, Ohio, operating under a recently issued patent, is preparing to market firebox syphons which connect the back water leg with the crown sheet, thus involving a principle of circulation not heretofore used in locomotive boilers. These syphons open from the back water leg above the fire door and then upward through the crown sheet, and extend downward to a point near the throat sheet but is not connected to it or to any other lower part of the boiler.

This company has built a model boiler one-eighth actual size with Downflow syphons and an identical model without syphons to compare the circulatory action of the water therein, under evaporation. The water in the syphons runs downward from the back water leg through the syphons then up to the crown sheet, from which downflow action, the syphon receives its name.

The forward lower corner of the syphon can be fitted with a connection which passes loosely through an opening in the throat sheet, when the firebox is not equipped with a combustion chamber. If the firebox is equipped with a combustion chamber, the syphon extends forward into the chamber and the connection from the bottom corner of the syphon passes loosely through the bottom of the boiler as shown in the accompanying sectional view of the locomotive. The bottom of the syphon, extending backward from the throat sheet to the rear water leg is fitted with a row of studs for supporting arch brick.

The Downflow syphon is a thin water leg which can be



The Circulatory Action Indicated by Arrows Returns Water From the Back Leg Down Into the Firebox Effecting Increased Evaporation

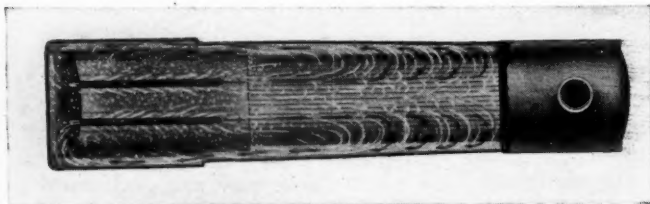
shaped into any form to suit the dimensions of any type firebox. Inasmuch as the syphons connect the back water leg and the crown sheet, no firebox need be specially designed to receive them. Therefore, their length is controlled only by the firebox length and the extent of the arch.

From a study of the sectional view of the boiler it is obvious that some of the boiler water solids that enter the syphons will accumulate in the lower forward corners. Although the operation of the model indicates that the circulation will discharge such solids upwardly and over the crown sheet, the Downflow syphons are designed with blow-off connections in their lower forward corners which, as previously mentioned, pass loosely either through the throat sheet or some other lower part of the boiler.

Inasmuch as the syphons connect only to the crown sheet and the back head, being free of any connection to the throat sheet, they are free to expand and to contract with the back head and the crown sheet, thereby avoiding the possibility of cracking from restraint.

The incorporation of the Downflow syphon connected to the crown sheet and the back head in the firebox permits the water to flow under steaming action from around the flues backward to the throat sheet and through side water legs; from here part of the water is circulated upward to the crown sheet and part circulated to the back water leg. Some of the water in this leg, the hottest in the boiler, is circulated forward and downward through the syphon. When this water strikes the surface of the syphons, steaming action is accelerated, resulting in improved evaporation.

The Downflow circulation of the water through the syphon eliminates the large fountain of steaming water which forms at the crown sheet from the back water leg in boilers not equipped with syphons. The performance of the model of the boiler equipped with Downflow syphons shows that the steaming water over the crown sheet, including the space at the back water leg is more

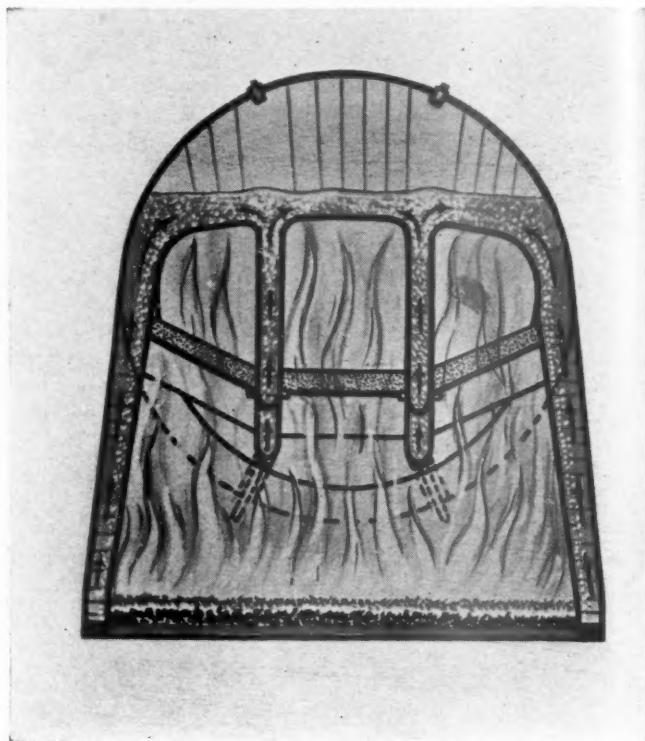


Plan View Depicting Fore-and-Aft Circulation Induced by Downflow Syphons

active and maintains a more uniform level than that in the identical model not equipped with syphons. The purpose for which the syphons were designed was to produce this accelerated circulation of water fore and aft through the boiler, thereby bringing more and hotter water on to the heating surfaces of the boiler. This maintains substantially equal water temperatures throughout the boiler, thus avoiding boiler stresses caused by circulating water of non-uniform temperature. A further purpose was to increase the heating surface of the boiler thereby increasing the firebox evaporation and average boiler efficiency.

In comparative tests of the boiler model equipped with syphons and the identical boiler not so equipped the following results were obtained: From an initially cold condition with water at 67 deg. F. and evaporating at atmospheric pressure, the model with Downflow syphons showed an increased evaporation of 30 per cent. In tests

where equal fuel consumption was measured in evaporating the water after initially reaching 165 deg. F., the syphon-equipped model showed an evaporation increase of 28 per cent over the other model. During these tests the smoke-box draft and the fire was maintained to approximate steaming conditions which might be expected in regular locomotive practice. Tests were also conducted



Cross Section of Downflow Boiler

to ascertain when water would stop being supplied to the crown sheets. The model with syphons continued to supply water to the crown sheets after the top row of flues were completely bare and after the fire was extinguished it was observed that the water was $1\frac{1}{4}$ in. (equivalent to 10 inches in the prototype) below the crown sheet. On the other hand, the crown sheet of the model not equipped with syphons began to burn before the water reached the level of the top row of flues; after the fire was extinguished the water level at the back flu sheet was $\frac{1}{8}$ in. (equivalent to only one inch in the prototype) below the crown sheet.

* * *



On the Northern Pacific near Bozeman, Mont.

Accountants Hold Convention

Atlantic City gathering hears addresses of marked vigor and high professional caliber

THE railway accounting officers held in Atlantic City on June 2-4 their second annual meeting since the assumption by the Accounting Division of the Association of American Railroads of the functions of the former Railway Accounting Officers Association, the present meeting being the forty-eighth annual convention of the accounting officers. Among the important features of the gathering in addition to committee reports and the addresses of Chairman Fell and Vice-President Bunnell, were a paper on proposed changes in interline freight accounting methods by T. H. Seay (comptroller, Southern)*; an informative address on the status of pensions by Hon. Murray W. Latimer (chairman of the Railroad Retirement Board) and a paper on Social Security Unemployment Compensation Problems by H. J. Walker (auditor of disbursements, Pennsylvania).*

In addition, O. J. Rider (general accountant of the Baltimore & Ohio) made a vigorous statement in favor of revision of the accounting classifications, and, in his capacity as chairman of the division's committee on statistics, presented a report of considerable length in addition to the summary of that committee's activities contained in the printed Agenda (reflecting the recent greater activity and interest in that committee's work). Hon. Harry Bachrach, president of the New Jersey Utilities Commission, delivered an address on accounting for purposes of regulation. The attendance at the meeting totaled approximately 600, members and guests. Officers for the new ensuing year were elected as follows: Chairman, T. F. Darden (vice-president, Atlantic Coast Line); first vice-chairman, J. W. Newell (chief accounting officer, Wabash); second vice-chairman, T. H. Seay (comptroller, Southern). Toronto was designated as the next place of meeting.

Chairman Fell's Address

In opening the convention, Chairman F. J. Fell, Jr. (vice-president, Pennsylvania) paid tribute to the work of Vice-President Bunnell and Secretary Ford of the division and said that "as we look back upon the work of the former Railway Accounting Officers Association we must be deeply impressed with the foundation so carefully built by our predecessors and the Interstate Commerce Commission. The basic principles of the present accounting system were established upon solid ground and the basic principles have stood the test of time. Our work has been to interpret and to amend them only after careful deliberation. The railroads were the pioneers in establishing uniform accounting. Industry did not fully appreciate its importance until many years after the railroads blazed the trail."

He then urged that the railways maintain the leadership they have established in accounting. "Let us" he said "march in the front rank and not drag along with the rear guard. Let us continue to initiate whatever may be necessary to properly record the results of rail-

road operations with economy. Accounting is the tool of business.

"Legislation with respect to social security, including pensions and unemployment compensation, tax acts in the various states and the federal income, excess profits and surplus taxes have multiplied the paper work in connection with the railroads and also with industry, and economical methods of handling this additional work must be found.

"We should continue the work of the past years and co-operate with the federal government and the states in the simplification of reports to the various commissions, taxing authorities and those bodies dealing with social security, etc. Every dollar spent for reports of this character comes directly out of the net income of the railroads. This point we should have before us always.

Accountants Can Stimulate Other Departments

"When we complete our audit of the accounts and assemble the figures in prescribed form and send them to our executives, have we performed our full duty? In my opinion, the answer is No. The accounting departments of these railroads are veritable storehouses of facts—facts which we should present to those in our organization charged with the duty of getting the business and those whose duty it is to transport it and maintain the railroad and equipment. When we give real data to our various departments upon our own initiative, we not only build our own prestige but usually increase our net. The executives of our railroads have a great responsibility resting upon them and we can, by extending our knowledge of the facts and figures, be of great assistance to them. A one per cent increase in revenue to all railroads means 40 million dollars and a decrease of one point in operating ratio means an increase in net income of 40 million dollars.

"Research is just as necessary in the accounting departments as it is in the mechanical departments and we should at all times be sufficiently dollar conscious to perform our accounting within a reasonable budget and to measure our cost of doing the work in an effort to simplify the accounting and reduce the cost.

"Interline freight and passenger accounting is not on as economical a basis as it should be. Much progress has been made during the year with the co-operation and the ground work has been laid for greater co-ordination as between the railroads in reaching conclusions in connection with disputes than ever before. The Accounting Division should continue to review the classifications of accounts to determine whether they are up-to-date and meet the new era in which we are all floundering today.

"In conclusion, I recommend for consideration:

1. A continuing review of all accounting classifications.
2. Persistent research for more economical methods.
3. Continuance of co-operation with federal and state authorities in simplifying reports and record keeping.
4. Dollar Consciousness in planning our work.
5. More round table meetings.

* To be published as a separate article in an early issue.

6. A greater than ever co-operation with our vice-president who is ever working to increase our value as accounting officers."

Bunnell Surveys Work of Accounting Division

E. H. Bunnell, vice-president of the Association of American Railroads in charge of the Accounting Division, in his address surveyed the work of the several divisions of the association briefly, followed by a more detailed report on the work of the Accounting Division. An abstract of his address follows:

The working organization of the Accounting Division is centered about the standing committees of accounting officers and the staff of the department. Together, they are investigating and considering plans and methods to increase the efficiency of the accounting departments of carriers, promote uniformity and standardization in interroad statements, accounts and settlements, the elimination of unnecessary "paper work," and other matters dealing with accounting problems. This is substantially the same procedure as previously existed in the Railway Accounting Officers Association. However, the establishment of the Association of American Railroads has provided an additional link with the advantage of continuous consideration of a subject to its final conclusion, and the submission of our recommendations to the president and board of directors whose decision becomes binding upon all for the common good.

Following the formation of the association, I undertook the organization of the Accounting, Treasury and Valuation Divisions of the department. Coincident with this work it became necessary to devote considerable time and attention to a detailed study of the various reports of the then Federal Co-ordinator of Transportation. In co-operation with other departments of the association, the staff of the department, assisted by special committees prepared comments on the accounting features of the Passenger Traffic Report; the Freight Traffic Report; the Merchandise Traffic Report; the report on Classification of Material and Pricing of Second Hand Material; Handling and Disposition of Scrap; Railway Accounts and Statistics by Four Weeks Periods, etc.

Answers to the Co-ordinator's suggestions with respect to a Transportation Clearing House and Railroad Fiscal and Related Work, which were referred to this department for study, were prepared by special committees of accounting and treasury officers and my staff. These answers were submitted through the president to the board of directors and approved.

In 1935 the Interstate Commerce Commission retained Professor William J. Cunningham, Professor of Transportation of the Harvard Business School, and Professor Kent T. Healy, of Yale, to make a study and report their recommendations upon what additions or changes they thought the Commission should make in its requirements and publications of operating statistics. Their report contained conclusions which would have materially expanded present requirements and, ultimately, would have resulted in additional out-of-pocket cost to the carriers of approximately \$335,000 a year.

These proposals received consideration by committees of the Accounting Division. After presenting our views to the Commission's Bureau of Statistics and pointing out that the added cost was not warranted, we were successful in preventing the adoption of the onerous requirements, although certain modifications were made effective January 1, 1936, which caused little or no increase in expenses.

During recent months practically all of the federally regulated industries, i.e., telephone, electric utility and pipe lines, have been required to revise the system under which they kept their accounts, or in the case of the motor trucks and buses, to consider drafts of proposed accounting classifications. The Interstate Commerce Commission, in the case of the railroads, also proposed radical changes in the existing accounting system, but through the efforts of the Accounting Division, agreed to postpone such action, with the understanding that for the present revisions would be confined to necessities and not disturb fundamental principles.

Our efforts were successful only because we first secured the

postponement of the order of the Commission requiring depreciation charges to be set up on fixed property under the provisions of Docket No. 15,100.

The present accounting classifications became effective July 1, 1914, and have never been reissued to include many changes and additions. In view of the agreement had with respect to revisions, the Accounting Division, with the collaboration of the Bureau of Accounts, brought up to date and published in one volume the classifications covering Investment, Operating Revenues and Expenses, Income, Profit and Loss and General Balance Sheet Accounts, Train Miles, Car Miles and Locomotive Miles. The desirability of this procedure was fully demonstrated by the sale of more than 20,000 copies of these classifications to railway accounting departments and others.

Chairman Fell's "Round-Table" Conferences

Upon the initiative of the present chairman of the division, three round-table conferences were held during the fiscal year. These meetings enabled the chief accounting officers and the members of their staffs to meet together and informally discuss problems and subjects of immediate concern. The usual order of procedure was to have short talks delivered by designated speakers which were followed by general discussions. The first meeting was held in New York on January 29, the second in Washington on March 26 and the third in Chicago on April 29.

The attendance at these meetings averaged 150 and from the general comments expressed it is believed that they filled a long-felt need in rounding out our program of activities, and it is planned to continue them. They are, in effect, "staff meetings" and permit a free and candid exchange of ideas upon topics that are of current interest and importance, instead of awaiting the time of an annual meeting. These meetings in no way conflict with our annual convention, or with our committees handling the customary subjects on their dockets. They have been the means of bringing our membership closer together by eliminating sectional differences and have increased the effectiveness of the division by securing a prompt crystallization of thought which through usual channels would take many months of correspondence and negotiation.

In 1935, the Interstate Commerce Commission entered an order revising the accounting rules relating to ballast. Originally scheduled to have become effective January 1, 1936, this order would have prescribed methods of accounting for ballast in investment and operating expenses, widely at variance from other fixed property, and requiring substantial expenditures for the preparation and continuation of ballast section records. After conference with the Bureau of Accounts and petition to the Commission, a postponement was granted to January 1, 1937. During 1936 the matter of further postponement or withdrawal of the order was again taken up with the Commission and a conference had with Directors Wylie and Lewis. At this conference accounting, engineering and valuation representatives of the railroads and the Commission participated. As a result of these discussions, the ballast order has been indefinitely postponed and the Association has agreed to undertake studies of the effective accounting rules to establish ballast routines. At my request Sub-committee E-1, of Committee XI, Records and Accounts of the American Railway Engineering Association, in conjunction with the valuation staff of the department is presently engaged in these studies and will make a full report upon the subject at an early date.

During the current year, standing committees made an extensive review of the Mandatory and Recommended Accounting Rules and it may be desirable to again republish these rules to take care of the changes which may be authorized at this convention. A revised edition of the Mandatory Interline Accounting Rules and Standard Forms of the Accounting Division effective November 1, 1936, and certain Passenger Rules, effective January 1, 1937, have already been published by the Department. The revised and Consolidated Arbitration Rules and Procedure were also contained in this volume.

The preparation of a Manual of Recommended Plans and Methods of Railway Accounting has been receiving the attention of special and standing committees of the division. It is planned that this publication will cover each phase of railway accounting, i.e., freight, passenger, disbursement, statistics and the use of mechanical devices. While the committees considering this subject have been making progress, it is hoped during the year to

come to devote more time to this subject and to endeavor to get this publication in your hands, as it is believed it will fill a long-felt need in our consideration of railway accounting.

Accounting Division a "Clearing House"

One interesting feature developed from the work on the manual has been the desirability of the department acting as a clearing house for the dissemination and exchange of accounting suggestions. Many carriers develop practices and short-cut methods which could be adopted to advantage by all carriers, and to that end I urge upon you the desirability of utilizing the staff and services of the department in working out suggestions that may be successful in reducing volume and cost of paper work now being performed.

For many years we have been discussing the problems growing out of the accounting for the division of interline freight revenue and from time to time we have adopted rules which improved the situation. At the present time I am very happy to report a greater willingness on the part of both traffic and accounting officers to co-operate in an endeavor to agree on a plan which will remove the uncertainty and expense caused by the lack of agreed divisions. The Traffic and Accounting Advisory Committees of the Association have taken over the supervision of the efforts being put forth and have recommended the establishment of competent divisional organizations within each traffic and accounting department to adjust and dispose of the existing divisional disputes and to avoid the accumulation of further disputes. Oral reports made from time to time indicate substantial progress in disposing of divisional controversies and in agreed divisions on future similar traffic.

Division committees, consisting of traffic executives, have been established for the purpose of supervising the settlement of inter-territorial division disputes, and to avoid the possibility of additional disputes arising and continuing over a long period of years. In addition, a subcommittee of the Traffic and Accounting Advisory Committees has been appointed for the purpose of restating such interim divisions as have been agreed to, applicable where no other agreed divisions are in effect, so as to clarify such divisions, and to dispose of inquiries concerning their application and to make recommendations to bring about simplification and consolidation in the publication of divisions.

Freight Accounting

Your Freight Committees gave earnest consideration to a number of plans which I am hopeful will materially aid in the reduction of the cost of accounting for freight revenue. You will find a discussion of these matters in the Committee's report as published in the Agenda. Briefly, they were:

1. The use of combination forms in the waybilling of freight, i.e., to carry on a manibill form the information contained on the bill of lading, the waybill and freight bill.
2. Consolidation of division sheets and uniformity of division publications.
3. The adoption of road to road per cents in the apportionment of revenue on l.c.l. interline waybills.
4. Limiting the number of audits of interline freight accounts.

These recommendations so vitally affect the conduct of our work that they have been made the special order of business on our program to be presented by T. H. Seay, comptroller of the Southern.

In the hearings instituted by the Commission in Ex Parte 91, General Revision of Accounting Rules for Steam Railroads, there was introduced the subject to cost finding and cost accounting which had been under consideration by the Commission from time to time. From the discussions which took place at the hearings and the findings in the proposed report of the Commission in that case came the direction to the Federal Co-ordinator that he "investigate and consider" "cost finding in rail transportation" as outlined in Section 13, Emergency Transportation Act of 1933.

The railroads had always taken the position, whenever the subject came up for discussion, that they were opposed to routine cost finding and that any cost figures developed should be obtained through special studies.

Just prior to the relinquishment of his office the Co-ordinator released a report on "Cost Finding in Railway Freight Service for Regulatory Purposes" which had been prepared under the direc-

tion of John H. Williams. The plan of routine cost finding proposed would have cost the railroads \$2,000,000 initially and \$500,000 each year thereafter by the author's own estimate. While the report was not submitted to the Regional Co-ordinating Committees or the Association for consideration, in an introductory statement the Co-ordinator stated that the trial and adoption of the plan which he recommends rest with the railroads and the Interstate Commerce Commission.

Special Studies vs. Routine Costing

For sometime past the Bureau of Statistics of the Commission has been giving consideration to the subject of cost finding. There is a definite trend towards special studies to be used when and as needed and some progress has been made in developing formulas for this purpose. This would seem to be a desirable approach to the subject as under this plan the carriers would not be required to assume the burden of a routine cost finding system. A number of cases are now under consideration involving rail and highway rates and the tentative formulas are being tried out. The formulas proposed are entitled "Expense of Service Analysis" and attempt to allocate expenses to accounting divisions and between line, terminal and special services. From time to time during the development of the report on cost finding which was prepared for the Co-ordinator the assistance of special committees of accounting officers was provided. In order that we might keep informed as the work of the Bureau of Statistics progresses an advisory committee of accounting officers on statistics and a special committee composed of accounting and operating officers has been appointed to deal with each phase of the cost formulas. Our objective is to assist the Bureau of Statistics in the formulation of proper statements of principles and flexible rules outlining the method of their application. Our belief is that inflexible rules expressed in set forms promote a mechanical and an unduly expensive performance which limits progress of a solution of this perplexing problem of cost finding.

No matter how perfect the language of an accounting classification, the question of its interpretation is important because such interpretation influences largely the results produced. To insure a full review of any suggested changes or interpretations of the accounting classifications which govern our procedure, a contact committee meets from time to time with the Bureau of Accounts of the Interstate Commerce Commission, to consider queries which have been raised. Queries and proposed answers are submitted to the contact committee and copies are also sent to the standing committees so that a consensus is obtained from railroad accounting representatives prior to final conference with the Bureau of Accounts. After preliminary discussion, the resultant findings take the form of "tentative accounting cases" and are then submitted to the General Committee of Accounting Officers for further review. Objections, if any, are presented to the Bureau and, within its discretion, the interpretations are issued in regular accounting case series.

Social Security Problems

The enactment of unemployment compensation laws and social security legislation by the Federal Government and the several states, in addition to matters arising from the Railroad Retirement Act, opened new avenues of opportunity for service by your Association. The railroads including the Pullman and express companies are employers of more than 1,300,000 persons. Many carriers had already in operation some of the objectives sought in this new legislation. Our difficulties arose from the lack of uniformity in the several acts and the burdensome detailed requirements which were being insisted upon in their administration which differed materially from the timekeeping and payroll records maintained by many carriers.

State committees of counsel and accounting officers were appointed in the several states for the purpose of acquainting public authorities with the records currently maintained by the railroads, to secure reasonable interpretations of the language of the acts, to keep requirements for reports and statistical data at a minimum and in conformity with the wage statistics furnished the Interstate Commerce Commission. A general committee composed of the chairmen of all the state committees was formed to co-ordinate the work of the state committees and to contact the Bureau of Unemployment Compensation of the Federal Social

Security Board. The committees appointed have rendered valuable service during the year and carriers were promptly advised of any benefits obtained.

There have been many increased opportunities for greater service by the standing committees by your association and it is largely through the work of the standing committees, which are, in effect, proving grounds, that the suggestions for advancement in railroad accounting are tried and tested before being given circulation.

Whatever our accomplishments may have been, or however successful, the biggest task is yet before us. We still need pioneers and to have the desire and willingness, yes, the urge, to try out new and unfamiliar methods. We need have no hesitancy in this, knowing full well that because of what someone has done in the past in the way of research the art of railroad accounting has been brought to its present high standard. Let us carry the good work forward!

I submit for your earnest consideration that member roads may well:

1. Develop a complete budget system to control, so far as possible both income and outgo.
2. Organize a special committee to analyze all controllable costs and keep management informed with respect thereto.
3. Review all forms, records, reports, statistics, etc., to the end that the most efficient methods of compilation be used and unnecessary reports eliminated.
4. Develop the possibilities of increasing efficiency with lowered costs, by centralizing, under the chief accounting officer, the control and production of all records, accounts and statistics, also the custody and destruction of records.
5. Review the effective classification of accounts prescribed for railroads and develop what changes, if any, would simplify the procedure or make the accounting more adaptable to the needs of management and the public.

Mr. Latimer's Address

Chairman Murray Latimer of the Railroad Retirement Board in his paper discussed phases of the retirement act which give rise to accounting problems, and also drew attention to the differences between the new measure and that already on the statute books.

"The act," he pointed out, "includes within its scope not only railroads, sleeping-car and express companies subject to Part I of the Interstate Commerce Act, but also other affiliated or subsidiary companies controlled by or under common or joint control therewith. The amendatory bill adds to this coverage railroad labor organizations or employers and their subordinate units and affiliates. It also makes specific the inclusion of railway associations. Perhaps the most noteworthy change in coverage about to be accomplished is the inclusion of the Canadian lines of American companies. This change will simplify certain problems of accounting and will, by making uniform this important condition of employment, remove certain potential obstacles to effective handling of personnel which might otherwise exist." An abstract of his remarks follows:

We are already beginning to deal with the problem as to where to draw the line between employees and independent contractors and professional persons. We are now of the opinion that, generally speaking, lawyers and doctors who are remunerated on a fee basis and perform occasional service, generally deciding for themselves the manner in which they shall perform any duties assigned to them, are not employees within the meaning of the Act. There are other cases, such as, for example, persons who carry mail from station to postoffice under contract, station custodians or merely perhaps the custodian of a station key, concerning whose status we are not yet clear. In all such cases where contractors or employees of contractors and professional persons are involved, we think it desirable that the Board be asked for a ruling in each case or group of identical cases. We suggest also that when a question arises on such cases, letters be addressed to the Commissioner of Internal Revenue, as well as to the Board, so that the common problems related to the Retirement

Act and the Carriers Tax Act may be passed upon at the same time. We have made arrangements with the Bureau of Internal Revenue to confer on and clear requests for rulings on the points in which both agencies are involved. I may add that we have a tentative agreement that in cases where the Board secures information by questionnaire or through investigation, this information is to be accepted by the Bureau in making its own rulings; and we propose to follow a similar practice where the Bureau of Internal Revenue has collected information. We thus hope to eliminate duplicate inquiries.

The conditions of eligibility to receive an annuity have been somewhat modified by the amendatory bill. The most important of these changes is probably the one which removes the penalties for remaining in service without agreement after the age of 65 or, in any event, except for officials, after the age of 70. The next most important change is one which requires as a condition of eligibility not only retirement from the railroad industry, but from the service of whatever employer by whom the individual may be engaged immediately prior to the time the annuity begins.

Employees are now eligible for annuity if they have been retired by a carrier after August 29, 1935, because of physical or mental disability. The amendments provide that the annuity will be payable under age 60, or between 60 and 65, without reduction only if the employee is permanently and totally disabled for any regular employment for hire. The 30 year service requirement for the full annuity will stand without change. Moreover, the payment of the annuity, until age 65, is contingent upon the furnishing of proof satisfactory to the Board of the continued existence of disability.

Among the other changes in the eligibility and qualification provisions are those which eliminate non-disability annuities, with the reduction of 1/15 per year, under the age of 60; the inclusion of persons permanently and totally disabled at age 60 or over irrespective of length of service, but with a reduced annuity; and the qualifying as employees of persons on sick leave or absent on account of sickness irrespective of whether or not they are physically able to serve on or after August 29, 1935.

Relatively minor changes have been made in the method of calculating annuities. As in the present Act, an annuity is calculated by multiplying the number of years of service by the sum of 2% of the first \$50 of the average monthly compensation, 1½% of the next \$100 and 1% of the amount in excess of \$150. As is now the case, that part of the monthly compensation in excess of \$300 in any month is disregarded in calculating the average. As before, the average compensation is based on the average over the whole period of service, except that for service before January 1, 1937, the compensation is to be the average for the eight-year period 1924 to 1931. The process is to be simplified by counting in the service period, for the purpose of calculating the average, only enough prior service to make a total of thirty years.

An important change is one which removes the present maximum of thirty years of creditable service so far as service after January 1, 1937, is concerned. This change of course, will have no effect on the amounts of annuities granted before 1967. Although this change affects no annuities immediately, it does affect the prospects of those employees now under 35, and of new entrants under 35. Another relatively minor change provides that service after 65 and after July 1, 1937, will no longer be creditable, per se. Compensation received after 65 may, however, be used in computing the average if its effect is to increase the average as it was at age 65. No annuity before 1967 can be more than \$120 per month.

In counting the years of service under the amended Act, prior service will not be considered unless a person was in employment or in an employment relation on date of enactment. This closes the door against persons who have long since severed their connection with the industry, but who may secure a few days employment somewhere and thus revive all of their years of service.

Estimates derived from the figures collected by the Federal Co-ordinator of Transportation indicate that initial annuities should run just above \$80 a month but declining gradually, because of the lesser importance of the 1924 to 1931 period, to about \$75 per month 25 or 30 years hence. During that eight years employees now retiring and those who will retire in the next several years were in the age groups of maximum

earning power and their whole prior service will be weighted accordingly. These calculations assume that future wage scales will be 95% of those based on the year 1929. The Co-ordinator's figures indicated an average length of service, without regard to the 30 year maximum, of about 37½ years, and about 28 or 29 years of creditable service.

The average amount of annuity, leaving out of account the elections of the joint and survivor option, has thus far been about \$63.50. The average period of creditable service has been about 26 years, average total service just over 31 years, and the average monthly compensation about \$140 per month. We have made many partial settlements based on partial service and, undoubtedly, the average creditable service will increase. Some reductions have been made in annuities granted to employees under 65, who claim disability which is not yet proved. In most cases, proof of disability will be furnished. We do not think that the average based on the Co-ordinator's study is seriously in error. It seems certain, also, that the retirements which have thus far taken place under the Act contain a larger proportion of persons who have been ill than will be the case from now on.

The present death benefit is payable, by and large, only in respect of employees who have begun to receive an annuity. The amended Act would provide a death benefit based on the aggregate wage received after December 31, 1936, to the designated beneficiary or legal representative of an employee who dies. The conditions for the election of the joint and survivor option, which now permit much adverse selection, have been tightened up so as largely to avoid this unfavorable aspect.

In the Railroad Retirement Act of 1934, the Board created by that Act was given power under certain conditions to substitute its provisions for the voluntary pension plans of the several railroads. Nothing was accomplished under the authority of the first Act, but the new amendments accomplish what may have been the general purpose of the provisions of the first Act. The pension rolls of the carriers are to be taken over, not under the terms as to annuities provided for employees as defined in the Act, but generally speaking, according to the terms of the carrier plans as they were on December 31, 1930. This general statement is subject to exceptions in that some roads are making payments under the plans which were not in effect at the end of 1930; but such cases are relatively few.

At the present time, the Retirement Act authorizes a year by year appropriation sufficient to cover the current requirements for the annuity and death payments. We estimated that the payments under the normal operation of the present system in the first year would be about \$47,000,000, whereas tax collections would have been \$140,000,000. All the \$140,000,000 would have gone, of course, into the General Treasury, and the excess of receipts over specific appropriations would have gone to pay the general expenses of the Government. It is, we believe, a sound principle of social security legislation that amounts equivalent to taxes imposed to meet the additional expenses of Government arising from the legislation should be appropriated to a reserve from which only the payments called for by the legislation can be made. One of the provisions of the pending amendments puts this principle into practice by providing for the appropriation to a reserve account of amounts sufficient, on an actuarial basis, to provide for payment of all benefits under the Retirement Act.

At the present time, the Board has in its files about 47,000 applications for annuity. Each week it receives new applications at the rate of more than 100 per day. Many of these applications are inactive. A good many have been filed because of the mistaken impression on the part of the men that their rights are forfeited unless they make application. However that may be, it seems probable that by the end of the year there will be some 35,000 to 40,000 active applications exclusive of course, of the pensions taken over under Section 6 of the proposed amendments. After the initial load of applications is cleaned up, we estimate that the normal volume of claims will average about 50 per day.

In order to meet these various requirements, the Board proposes first of all, to set up an individual account for each employee, to which will be posted the compensation received by the employee with respect of service on and after January 1, 1937. The postings will show the compensation in each month to a maximum of \$300. In order to secure this information, the Board proposes to institute a basic quarterly return.

Second, we propose to begin the collection of prior service records beginning with the oldest men first. In connection with these prior service records, we hope to be able to secure a date of birth as given by the employee at some past period. We hope also to secure information as to when the date of birth was given to the carrier. If this birth record was furnished to the employer 20 or more years before retirement, and at the age of 21 or over, and if it agrees with the age now given by the employee, we now think that we shall have reasonable proof of the birth date. Third, since each employee must be given the opportunity to designate a beneficiary to receive the death benefit, we propose to circulate forms to the employees on which they make such designations. In this task, we hope to have the cooperation of the railroads, both in the distribution of the forms and their collection when designations have been made. Fourth, the new Act has provided for more stringent conditions surrounding the election of joint and survivor annuities. The employees who wish to take advantage of this option must elect on or before January 1, 1938, or 5 years or more before retirement. In the absence of such election, the option will be available to employees only upon proof of health.

Revise Classifications?

O. J. Rider in his paper advocating changes in the accounting classifications referred to J. J. Ekin's paper at last year's meeting of the accounting officers outlining the history of the present classifications. Continuing he said in part:

You are all familiar with the attempt of the Committee on General Accounts approximately eleven years ago to change the method of reporting capital expenditures for new lines, extensions and additions and betterments from a "primary account" Road and Equipment classification, to a "project" Road and Equipment classification, following, as it would if adopted, the present almost universal carrier practice of referring only to undertakings by projects when reporting such expenditures in their annual reports to stockholders. If the component parts of such expenditures are required for any purpose, the carriers and the Interstate Commerce Commission have in their possession all necessary data. The "project" Road and Equipment classification had the unanimous endorsement of the Committee on General Accounts. It might be fruitful to review this subject.

Another feature not carried to conclusion is the suggestion that service losses on account of property retired and not replaced be charged to Operating Expenses, instead of Profit and Loss. It may be stated without question, it seems, that the normal functions of the property retired are absorbed by some other facility and that, therefore, the functional operation has not ceased to exist, but, rather, the facility which performed it has changed in character and, consequently, operating expenses should be charged with the transition costs.

In the discussions concerning the application of depreciation accounting to fixed property, it was developed that should the depreciation accounting proposed for fixed property be adopted, the charging of such service losses to expenses would be taken care of automatically. In the proposed report in Ex Parte 91, it was stated, in reference to this feature:

"If it (depreciation on fixed property) is not adopted, the proposal that such amounts should be charged directly to Operating Expenses should be followed."

A renewed interest in this subject might bring about desirable changes.

Use Factor in Depreciation Accounting

While upon the subject of depreciation it may be well to express our interest in the effect that the use of equipment should have upon the distribution of annual depreciation charges. We are of the opinion that it is proper to consider the factor of "use" in depreciation accounting, and the fairness of such a plan was argued by the carriers in the depreciation hearing. It is suggested that, inasmuch as the door has not been closed for further consideration of this question, this Association move to reopen the subject.

From the beginning of the recent discussions upon depreciation

accounting it has been difficult to understand clearly the principles underlying the Bureau of Accounts' rulings that the amount of insurance recovered on account of equipment destroyed, say, by fire, should be credited to the Depreciation Reserve. Through the normal operation of the presently prescribed depreciation accounting the reserve receives what we may call Credit No. 1, when expenses are charged. Equipment insurance premiums are, likewise, charged to expenses. Upon destruction of a particular unit, the service value, less salvage (scrap) recovered, is charged, let us say, against Credit No. 1. The amount of insurance recovered is not credited to expenses, which have borne the burden of the equipment depreciation and paid for protection against the destruction thereof, but to depreciation reserve, creating, let us say, Credit No. 2, which remains in the Reserve forever, representing no units of equipment.

Is it not time to give further consideration to that feature?

The "Write-Out Write-In" Principle

The carriers, in substantially all instances where units of roadway property are replaced, are required, under the rules, to follow retirement accounting, or the "write-out write-in" principle. With respect to equipment, the rules require retirement accounting not only in cases of the retirement of complete units, but in cases where there is dismantling of units of equipment in order to replace parts thereof with improved parts, the purpose of which is to modernize the unit and create expectation of life fairly comparable with new and modern equipment. Although there exist, in the effective accounting classification, rules for replacement accounting it appears that the effort of the Bureau of Accounts of the Commission has been to advance and foster the principle of retirement accounting. In a proposed order of the Interstate Commerce Commission, prepared by the Bureau of Accounts, in October, 1935, there were set down instructions, to be known as Section 15 of the General Instructions in the Classification of Investment in Road and Equipment, covering accounting for the cost of minor items of equipment retired, replaced, etc. The proposed instructions after analysis by the General Committee of the Accounting Division were found to be objectionable due to the inclusion therein of the principle of "write-out and write-in" accounting for minor items of equipment, the minimum cost of which may have been inconsequential, depending not, as stated, upon the judgment of the carrier as to whether the condition and value of its property for valuation or depreciation purposes, was affected, but upon differences of opinion that would arise between representatives of the Interstate Commerce Commission reviewing the results of the accounting and the carriers' forces performing the accounting under the rule.

In conference later with the representatives of the Bureau of Accounts the radical change and far-reaching effect of such an order was stressed, and the hope expressed that the proposed order might be withdrawn, or, at least, deferred indefinitely. As a result, the order was not issued.

However, the accounting principle there involved was not permitted to lie dormant for long. It was revived and presented to the carriers in Tentative Accounting Case No. 71, on October 3, 1936. Several accounting officers objected to the principles of "write-out and write-in" accounting for minor items of fixed property. Their objection did not prevail, and Bureau of Accounts' interpretation was issued November 16, 1936, titled "Accounting Case Series Circular No. 12, Case 105."

It is suggested that further consideration be given this matter, and that the arguments presented to the Bureau of Accounts in the case of the proposed accounting for minor items of equipment be brought to bear upon the instructions relating to the accounting for minor items of fixed property, to the end that the present replacement accounting be continued.

Notwithstanding positive instructions with respect to Road and Equipment Retirement accounting we have with us interpretations in "A" Cases 94, 109, 110 and 111, that are, it seems, in conflict therewith. In one instance ("A" Case 94) we are instructed to transfer all expenditures in connection with private crossings at grade to Investment in Road and Equipment Account 2½, Other Right-of-Way Expenditures, an account which, in text and apparent purpose is to include only the excess of expenditures over the value of property acquired.

Others, "A" Cases 109, 110, and 111 (Accounting Case Series

No. 13, November 24, 1936) direct, generally, that no investment accounting shall be performed for physical changes in property due to State or municipal participation in overhead highway bridge construction, notwithstanding the fact that items, the cost of which have long lodged in Investment in Road and Equipment, will be retired, and that the salvage recovered will be placed in the storekeeper's custody.

Further, it has been suggested that facilities such as private crossings at grade, etc., are not to be considered "Transportation Property," and that, therefore, all expenditures in connection with such construction should be included in Road and Equipment Account 2½, Other Right-of-Way Expenditures. Without admitting for a minute that they are not transportation property, it is submitted that should such a decision prevail, then the expenditures for such facilities should not be included in Investment in Road and Equipment accounts at all, but treated as Miscellaneous Physical Property.

One more point concerning such facilities—most likely they are obligations of the carrier assumed with the purchase of right-of-way and perhaps all of them may properly be included in Account 2, Land for Transportation Purposes.

In this respect I am not entirely like the soldier who found all other soldiers out of step but him. I have noticed in the Agenda that my friends of the Disbursements Committee have given some thought to those cases and have found occasion to disagree with the interpretations in at least one instance.

It is submitted that further consideration should be given to the accounting interpretations promulgated in those cases.

In an early issue of the interpretations, October 15, 1934, Accounting Case Series No. 2, Case A-6, came to our attention. It directed the accounting to be performed in case there were exchanges of property, both when there were and when there were not cash considerations in addition to the value of lands. In our study of this case it appeared that if sufficient cash changed hands it might be possible to possess property without record of such ownership being recorded in the corporate books. In discussion it was stated that it was possible for such instances to occur and if they did a "One Dollar" value should be recorded. It is submitted that the "One Dollar" value would not reflect the proper valuable asset on the balance sheet, and for that reason further consideration might be given to this accounting.

Another property item for which definite accounting has been proposed by this Association is that for property donated, making necessary Profit and Loss Donation accounting. Sooner or later the necessity for retaining such property in service disappears, and consequently, the property is retired. It appears that complete accounting will not have been accomplished until all items respecting it have been purged from the books and "free" surplus restored. With this thought in mind the General Committee of the Accounting Division submitted this question to the Commission on April 15, 1933. On September 20, 1935, upon request, the Director of the Bureau of Accounts advised upon this subject, as follows:

For the reason that theoretically the carrier is entitled to charge against revenues in operating expenses the service value of the property acquired through donations, the amount of the donations being thus retained in its Asset accounts even after the physical property is retired, the amount of donations should be continued on the Liability side of the balance sheet, the same as other capital contributions. For those reasons the recommendation of the association is not acceptable.

I suggest that this is a subject for such further consideration as its importance may merit.

In the Operating Revenue and Expense classification perhaps one of the greatest needs today is a clarification with respect to the accounting for expense incident to motor bus or truck operation. When and when not to include expense of such operation as a "revenue absorption," or to consider it an expense item, is a moot question. There is at present, it is believed, much confusion, especially in connection with expenses due to carrier operation, or the identical operation performed by a contractor. The principle governing today, appears to be similar to that which dictates that other carrier switching charges should be absorbed in revenue, if the road-haul carrier is unable to effect delivery on its own line.

Various interpretations may be placed upon the several cases of the Bureau of Accounts regarding the accounting for these features of motor bus or truck operation. It seems that further study should be given to this problem.

A feature which may be stated as being closely related to the

matter just mentioned is the influence exercised upon accounting through assessment by the several States of gross revenue taxes. This, it is recognized, brings to the front the feature of accounting "Net" for such items as refrigeration, heating service, etc., and it will be recalled that during the early discussions upon this subject it was recommended by an Interstate Commerce Commissioner that—

No good reason appears why the revenue derived from all phases of carrier service performed under published tariffs should not be recorded among operating revenues where they properly belong, and the Commission should so find.

Shop and Material Expenses

This body has recommended upon several occasions that Shop Expenses, Material Store Expenses, Stationery Store Expenses, and Work Train Service, be set out in primary accounts. To date those recommendations have not been adopted. The chief reason for their rejection, stated in the Ex Parte 91 proposed report, was that the present distribution of such expenses over other direct charges was "a step in the direction of cost accounting ***"

It appears that to date, for exactly dissimilar reasons, the only cost accounting feature included in the present classification represented by the treatment of those items should be eliminated from the classification and primary accounts established.

Consideration should be given to those matters again, after the nine-year lapse, and it is suggested that a review of the sums involved will add support to the fact that the necessary light thrown upon those items by establishing primary accounts therefor will prove profitable.

Almost entirely by force of habit we include in the general group Maintenance of Equipment the charges for repairs to steam locomotives, other locomotives, and we include the servicing of that equipment, such as fuel, lubrication, water, enginehouse attention, etc., under the general group "Transportation—Rail Line." The same is true of the units of car equipment—habit dictates that we include the repairs under the general group "Maintenance of Equipment" while the care of this equipment, such as heating, cooling, lighting, lubricating, icing and watering, cleaning, etc., are items for inclusion under the general group "Transportation—Rail Line." As the responsibility for the expenditures for repairs to and care of this equipment lodges with the mechanical department, why should not such expenses be included in the general group "Maintenance of Equipment"? For nearly fifty-eight years, or since the general conception of classification was adopted by the Convention of State Railroad Commissioners in June 1879, carriers have been accounting, generally, upon the present theory which demands a separation between the features of repairs and servicing. The suggestion is made that consideration be given to such rearrangement as a further aid to management in the control of expenses. The rearrangement with the inclusion of Shop Expenses, Store Expenses, Work Train Expenses, etc., dignified as primary account items, will provide Management with a picture of expenditures by departmental responsibility.

It is suggested that consideration be given to the establishment of primary accounts in which there may be exhibited the expenditures for labor, material, fuel and miscellaneous items. This might be done by the creation in the classification of primary accounts solely for labor, primary accounts solely for material, etc., and combination accounts where they are needed, to include total charges, such as repairs, etc., the separation of the combination accounts into labor, material, fuel, etc., to be accomplished by sub-accounts.

An intense study might be given to the balance sheet classification and to the location, perhaps, of some balance sheet primary accounts on the balance sheet itself. As an indication, primary account 753, Premiums on Capital Stock, might be removed from its present position and included in the "Surplus" group.

Committee Reports

The reports of most of the committees were not substantially altered from the form in which they appeared in the printed Agenda of the meeting. Considerable discussion, however, arose at the report of the Committee on Disbursement Accounts, as the result of which its

recommendations on some 12 subjects were not received, but were referred back to it for further study and report. The report of the Committee on Passenger Accounts was particularly optimistic, Chairman G. W. McElwain (auditor passenger accounts, S. P.) calling attention to the changes in passenger traffic which have occurred since the time, a few years ago, when it "looked as if some of us auditors would have to go on relief."

Statistics Committee

The most marked change from the printed Agenda came in the report of the Statistics Committee, which drew attention to its recommendations on subjects dealing with freight commodity statistics, terminal switching studies and the preliminary draft of proposed formulas for allocating expenses to operating or accounting divisions, and to yard, road, station, terminal transfer and overhead. On the last-named question the committee expressed its opposition to the acceptance of standardized forms for use in special cost studies. Continuing it said:

Reverting, for the moment, to the present method in vogue in separating common items as provided for in the rules for the separation of freight and passenger expenses, and conceding the fact that arbitrary separations are necessary; believing also, that the rules as now in use present the nearest approach to an acceptable basis for making this separation, your Committee suggests that it is possible to reach an agreement, with similar qualifications, upon factors which might be used in making further separations or refinements of either the freight and passenger proportion of expenses. It is suggested that if this were done, inasmuch as the two would be intimately related, consolidation might be made of all factors thus agreed upon into one set of rules governing not only the separation of freight and passenger expenses, but any further refinement thereof. If this were accomplished, the separation of expenses now required in the annual report forms could be eliminated. When approximations of expense incurred in a particular service, or an element of service, were required, apportionments could be made by an application of factors recommended by the rules.

Your Committee is unanimous in its recommendation that the "flexible rule" method be adopted, and suggests that one policy of the Association be that of continued opposition to the suggested rigid, standardized formulae proposed; and that, another policy be one of initiative by offering suggestions, or by assisting in the study of and preparation of a list of 'agreed-upon' factors to be incorporated in the rules suggested.

* * *



Photo by Robert A. Carr

A Baldwin Locomotive on Argentine State Railway

More About Rail Failures*

Third progress report of investigation sponsored by the roads and the manufacturers discloses results of broadened research program

By H. F. Moore

Research Professor of Engineering Materials, University of Illinois,
in charge of the investigation

INFORMATION concerning the frequency of high wheel loads has been amplified since the publication of the second progress report† by field tests on the Atchison, Topeka & Santa Fe, near Matfield Green, Kan. The track under test is on a single-track cut-off that carries only freight traffic. The traffic is normally heavy, and up to May 1, 1936, rail that was laid in 1932 had carried 45,800,000 tons.

There were two test locations. One was on tangent track on a well-compacted fill. The rail, 110-lb., is on sound ties, with clean crushed stone ballast, tie plates on every tie, and 25 ties to the 39 ft. panel. Maintenance of track was very good but the rail support was not as uniform as it appeared.

The second set-up was on a ballast-deck timber bridge supported on tall wooden pile bents. There are nine bents spaced uniformly 14 ft. center to center, except for the north span in which the bents are 11 ft. apart. The ties, tie plates, ballast and maintenance were, apparently, about the same as on the first set-up. In some places vertical movement of the deck with respect to the pile bents could be observed as trains passed. At both test locations 20 scratch extensometers were used, 10 on each rail, spaced as nearly as possible two tie spaces apart and opposite each other on the two rails.

Figure 1 gives a frequency diagram for high wheel loads for regular track at Matfield Green and also includes the results of the Dayton, Coatesville, and Rome test previously reported. It is noticed at once that the average frequency (above say, 0.01 per cent) of high wheel loads for all instruments used was less at the Matfield Green and Rome locations than at either of the other two.

Two High Wheel Loads Observed

Two especially high wheel loads were observed during the tests at Matfield Green, one of 65,000 lb. and another of 84,000 lb. Both of these occurred at a very stiff spot on the roadbed, under train speeds of 35 and 45 miles per hour, respectively, and perhaps were due to out-of-round wheels or very long flat spots coming at a hard spot in the track.

It will be noted that whereas loads of 40,000 lb. or greater occurred at a frequency of about one in 1,000 at Coatesville and Dayton, the loads occurring at this frequency at Matfield Green and Rome included all those of 30,000 lb. or more. Studying the train sheet records it was found that this difference (10,000-lb. wheel load)

corresponds approximately to the difference between the average nominal wheel loads at these two groups of locations. At Dayton the traffic was largely ore and coal, at Coatesville it was largely coal, at Rome it was mixed freight with a considerable number of refrigerator cars, and at Matfield Green it was refrigerator cars, oil tank

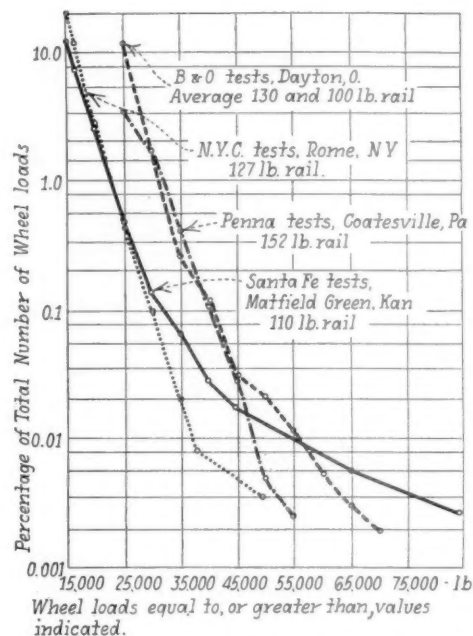


Fig. 1—Load-Frequency Diagrams for Field Tests of Wheel Loads on Sections of Track of Different Stiffness

cars, box cars, some stock cars, but relatively few coal cars.

The frequency curves for wheel loads in Fig. 1 show the average frequency, as given by all instrument records taken. At the Matfield Green location it was found that, with the exception noted above, all instrument locations were subjected to approximately the same frequency of high wheel loads. At Dayton and Coatesville there were individual instrument records showing as high as three times the average frequency of high wheel loads.

Tests of Track on Bridge

The purpose of determining the magnitude and frequency of passing wheel loads on the bridge was to study the effect of the relative stiffness of the track structure on the bridge and on the regular track upon the frequency of high wheel loads. In Fig. 2 are plotted

* Abstract of Third Progress Report on the Investigation of Fissures in Railroad Rails, published in Bulletin 395 of the American Railway Engineering Association.

† An abstract of the Second Progress Report on the Investigation of Fissures in Rails was published in the *Railway Age* of July 4, 1936, page 25.

the load-frequency curves for the two test locations at Matfield Green, namely, on the roadbed and on the ballast-deck bridge. The rail support itself on the bridge was only slightly less stiff than on the fill at set-up 1. The curve for loads on the bridge lies close to the curve for loads on the roadbed, but shows frequencies not quite so high, and with no load higher than 45,000 lb. The load-frequency curves for the two tests near Rome (and Greenway), N. Y., are also shown in Fig. 2 for comparison.

Figure 3 is composed of two graphs showing the ratio of wheel load to bending moment in the rail at slow speeds (10 m.p.h. or less) for regular track and for the ballast-deck bridge. The distances along the rail for all points are shown as abscissae. The load-moment ratio is an approximate measure of track stiffness.

It is to be noted that there is a greater variation of stiffness in the regular track (within about 30 ft. along the rail) than in the track on the bridge deck. On the roadbed the two very high wheel loads observed in the tests occurred at the point of greatest stiffness, the highest plotted point in Fig. 3. No car wheel load greater than 45,000 lb. was observed on the bridge, and few loads above 40,000 lb. The difference between the average stiffness of track at the two Santa Fe locations shown is not very marked, the ballast-deck track being somewhat less stiff.

The stiffness of track appears to be a contributing factor to high wheel loads, although not of itself productive of very high loads. Irregularities in car wheels (flat spots and out-of-roundness) or in track (non-uniformity of rail support) seem to be necessary to produce very high wheel loads. However, the combination of irregularities in car wheel or track together with very stiff track would be expected to produce still higher wheel loads at certain speeds.

The ballast-deck bridge at Matfield Green appears to be somewhat less stiff than regular track and much less stiff than "GEO" track with ties laid directly on stringers of the steel truss bridge near Rome, N. Y. As tests have been made on only one bridge of each of the two types, no general conclusion should be drawn concerning the relative tendency of transverse fissures to start and spread in track on various types of bridges. On one

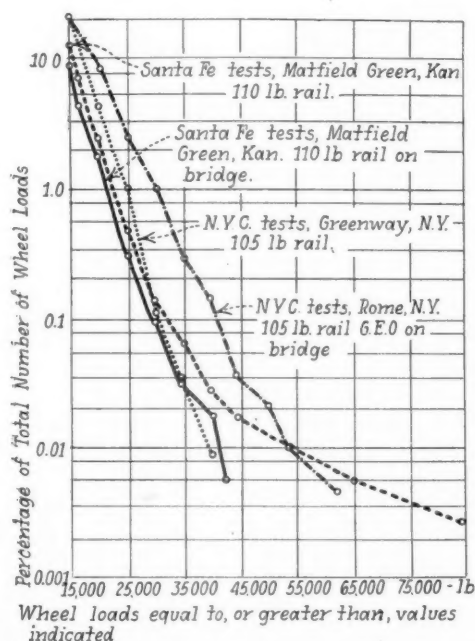


Fig. 2—Load Frequency Diagrams for Field Tests of Wheel Loads at Two Locations on Roadbed and Two on Bridges

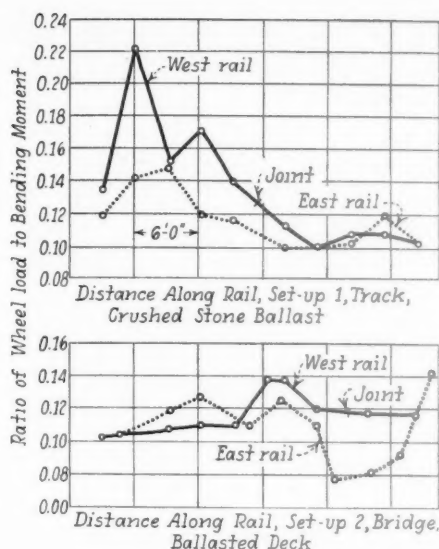


Fig. 3—Load-Moment Diagrams, at Slow Speed, for Tracks, at Two Test Locations of Different Stiffness—110-lb. R. E. Rail—Bending Moment for Outside Wheel of Group of Four Adjacent Car Wheels

bridge the loads appeared to be higher than on the other, but it must be remembered that the magnitude of wheel load is not the only important factor in the development of fissures in rails. While the direct action of wheel loads starts fissures, bending stresses play an important part in fissure growth. In order to make any prediction of the likelihood of fissure development on bridge track (or on any other track), the magnitude and frequency of high bending stresses must be considered as well as the magnitude and frequency of high wheel loads.

Acceptance Tests of Rails

Based on a study of approximately 200 rail specimens, including some 35 which have been tested since the presentation of the 1936 progress report, the test party still holds the opinion that the head-down bend test is distinctly superior to the present standard drop test as a detector of shatter cracks in rail heads. To be at all satisfactory in detecting this shattered condition either test, bend or drop, should be made head down. It has been pointed out that the bend tests carried out at the University of Illinois are all on specimens cut from the cold rail, while the drop test as now carried out is on a special short length of rail cut off at the hot saws and allowed to cool, usually in the open air. It would seem that this short piece of rail would cool more rapidly than rails on the hot bed, and that the test of such a specimen might mean the testing of metal which had been subjected to more severe cooling than was true of the hot-bed-cooled rails and, of course, that such a test would be altogether misleading if used as a test for shatter cracks in control-cooled rails.

The members of the test party feel that, however the specimen is taken and cooled, the bend test is a better test than the drop test as practiced. The following three reasons are given for this statement: (1) The bend test carries a specimen to destruction under known conditions of computable load and deflection; (2) the stresses set up in the drop tests cannot be measured, and under repeated blows the damage caused by each blow after the first is a matter of uncertainty due to the distortion of the rail specimen; (3) the bend test gives all the information that the drop test gives and strength values in addition.

Of course both bend tests and drop tests are subject

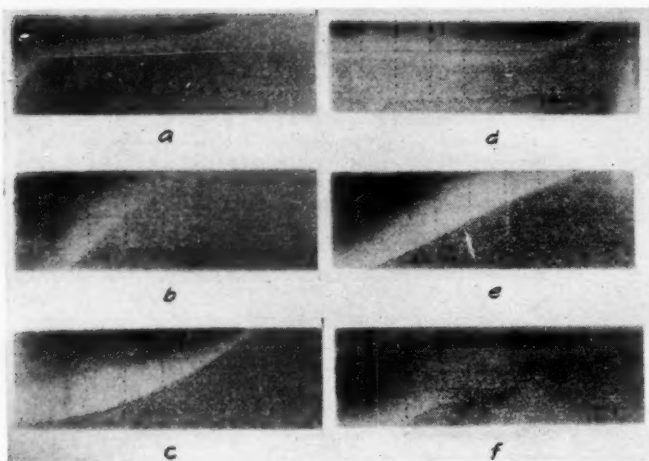


Fig. 4—Macrograph of Hardened Zone in End Hardened Rails

a. 131-lb. Rail, Process 1
b. 112-lb. Rail, Process 5
c. 131-lb. Rail, Process 2

d. 112-lb. Rail, Process 2
e. 131-lb. Rail, Process 2
f. 131-lb. Rail, Process 4

to the limitations of all samples tested to destruction. There is always an uncertainty as to whether the sample broken is representative of the entire lot of steel. This is especially true when using either test for detecting a shattered condition. Shatter cracks may be found in some rails of a heat, while other rails from the same heat are free from them; shatter cracks may be found in one part of the length of a rail while other parts are free from them. This is an inherent condition in a shattered condition of a steel rail.

In the 1936 progress report a preliminary account was given of the use of the microphone to detect cracking during the cooling of rails. A second set of tests was run at the mill of the Tennessee Coal Iron & Railroad Company in an effort to eliminate the difficulties that militated against the success of the earlier tests, but the results indicate that the microphone test does not give much promise of usefulness. At the present time, after many disappointments, promising results are being obtained from a combined acoustic-electric test. A critical study of this test and the development of apparatus are now under way.

End Hardening and Batter of Rail Ends

At the beginning of 1937, the study of end-hardening and batter of rail ends was made a major feature of the rails investigation. Previous to that time some preliminary studies had been made, and the general type of test for batter of rail was outlined in the 1936 progress report. It is emphasized that these results are preliminary and not adequate for the drawing of quantitative conclusions. A considerable number of tests of rails end-hardened at various mills by various processes have been made. These tests may be grouped under four headings: (1) A hardness survey of longitudinal

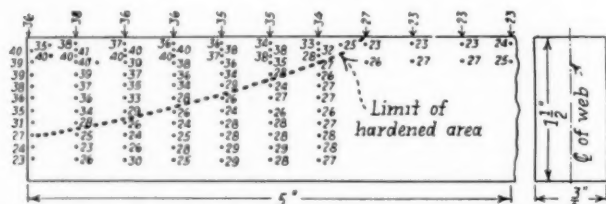


Fig. 5—Typical Hardness Survey on a Vertical-Longitudinal Section of the Head of an End-Hardened Rail. Figures Indicate Rockwell "C" Hardness at Points Indicated by Dots and Arrows

sections of the rail head, including both the hardened zone and the zone left unhardened; (2) a metallographic study of the structures of steel in the hardened region as compared with structures in the unhardened region; (3) tests of the physical properties of specimens cut from the hardened portion and the unhardened portion of the rails; and (5) batter tests of rail specimens using the rolling-load machine which was described in the 1936 progress report.

Figure 4 shows typical vertical longitudinal sections through the middle of rail heads with hardened ends after deep etching with ammonium persulphate. This brings out clearly the depth of penetration of heat during the end hardening process, and locates fairly well the zone of demarcation between the hardened end and the unhardened portion. The small points shown in the sections are the marks left by the Rockwell diamond point indenting tool used for the hardness test.

Hardness in the hardened zone ranged from 31 to 49 Rockwell "C" (279 to 441 Brinell). In the unhardened rail head the hardness ranged from 23 to 31 Rockwell "C" (207 to 279 Brinell). It was found that a much more thorough study of the area could be made by the

| | Hardened | Unhardened |
|---------------------------------------|---------------|---------------|
| Process for hardening | No. 1 | No. 2 |
| Weight of rail lb. per yard | 131 | 112 |
| Elongation in 4 diameters - % | 0 10 | 0 10 |
| Reduction of area - % | 0 20 40 | 0 20 40 |
| Izod-Olsen test (notched) - ft. lb. | 0 1 2 3 4 | 0 1 2 |
| Charpy test (unnotched) - ft. lb. | 0 100 200 * | 0 100 200 * |
| Tensile strength 1000 lb. per sq. in. | 0 100 | 0 100 |
| Fatigue limit 1000 lb. per sq. in. | 0 100 | 0 100 |
| Hardness Brinell number | 0 100 200 300 | 0 100 200 300 |
| Rockwell C | 0 10 20 | 0 10 20 |

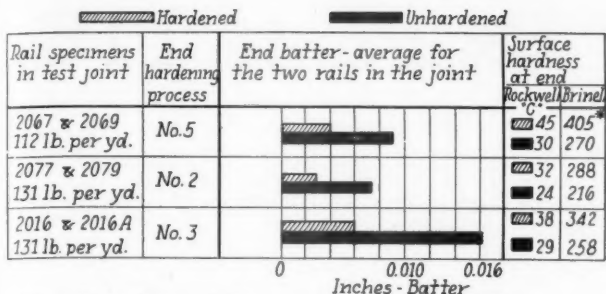
* Capacity of testing machine - specimen unbroken

Fig. 6—Physical Properties of Specimens Taken from Hardened and Unhardened Ends of the Heads of Rails

use of the Rockwell machine, using the "C" scale, than with the Brinell machine. By a series of Brinell and Rockwell tests on the same specimens it was found that a fairly accurate translation of Rockwell "C" numbers into Brinell numbers, for rail steel, can be made by multiplying the Rockwell "C" number by nine.

A typical distribution of hardness values over the surface of a longitudinal vertical section of a rail head is shown in Fig. 5. Nearly all the tests made thus far on rails end-hardened at the mills show a rather deep penetration of hardness into the head of the rail, in extreme cases actually extending into the web. It is known that certain processes used in the field produce a much shallower hardness and there are those who hold the opinion that too great a penetration of hardness is undesirable. At this stage, however, it is quite impossible for the test party to offer any opinion on this question.

Metallographic studies disclose a well-defined refinement of the grain in the hardened zone. In one or two cases there have been evidences of localized sections in which the structure of the steel seemed to be martensitic. It seemed likely in these cases that the martensitic struc-



* Brinell hardness numbers are taken as equivalent to 9 times Rockwell C numbers for rail steel

Fig. 7—Relative End Batter, After 2,000,000 Passages of a 40,000-lb. Wheel Load in a Rolling-Load Test, of Hardened and Unhardened Rail Ends

ture produced was due to accidental irregularities in the application of heat to the rail, or to irregularities in quenching procedure, and that this is not typical of the processes as usually carried out.

Physical Tests of Specimens

To determine the effect of the various end-hardening processes on the physical properties of the rails so treated, a preliminary testing program is being carried out on seven sets of end-hardened rail specimens received from six different mills. The seventy specimens under test include rails of both 112- and 131-lb. section which in turn include specimens end-hardened by five different processes.

Specimens for the tests were cut from the end-hardened material, from the transition zone and from the unhardened zone of rail samples. In the specimens from the transition zone they were so machined as to include the line of demarcation between hardened and unhardened zones in the critical section of the specimen. Fig. 6 summarizes test results from specimens so far tested.

Rolling Load Test for Batter in Rails

The rolling load testing machine for producing batter in specimens, consisting of two short pieces of rail and a pair of joint bars, was illustrated and described in the second progress report. After the specimen had been given any desired number of cycles of load of any desired magnitude and bending moment, it is removed from the machine and a micrometer gage attached to it to measure batter.

Tentatively the standard wheel load for batter tests was set at 40,000 lb., which represents a considerably higher load than the average wheel load which rails withstand, but it seems probable that most of the batter is caused by wheel loads above the average, so this would seem to be a fair test load. The amount of batter in hardened and unhardened end rails tested is shown

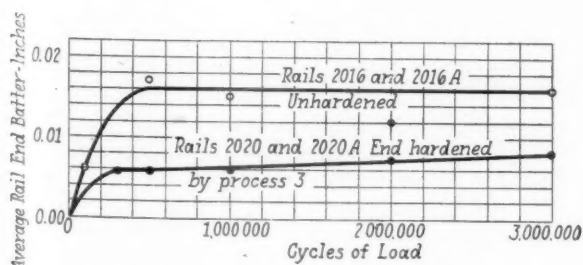


Fig. 8—Growth of Batter With Cycles of a 40,000-lb. Wheel Load

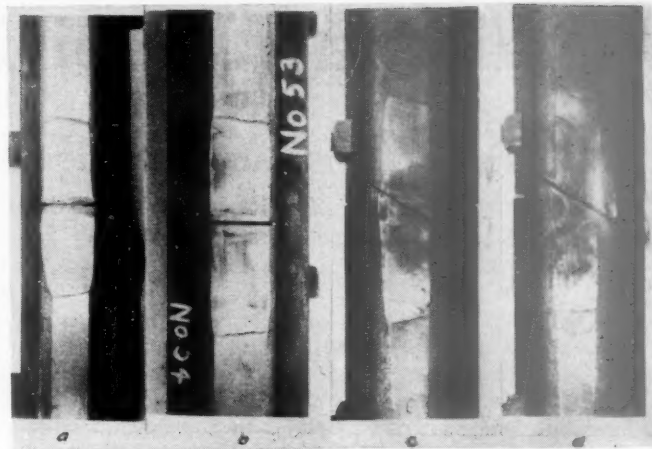


Fig. 9—Rail Joints After Rolling Load Test for End Batter, All Joints With 1/8-in. Gap

- a. Unhardened Rail Ends After 2,001,400 Cycles of a 40,000-lb. Wheel Load
- b. Hardened Rail Ends After 3,016,100 Cycles of a 75,000-lb. Wheel Load
- c. Unhardened Rail Ends After 1,963,900 Cycles of a 75,000-lb. Wheel Load
- d. Hardened Rail Ends After 1,999,800 Cycles of a 75,000-lb. Wheel Load

in Fig. 7. Figure 8 shows the growth of batter for a typical test. About all that can be said at present is that the hardened end rails tested show a very marked decrease in the amount of batter as compared with an unhardened end rail. This is further shown in Fig. 9. It should be noted that so far all the hardened end rails have been rather deeply hardened and hardened back

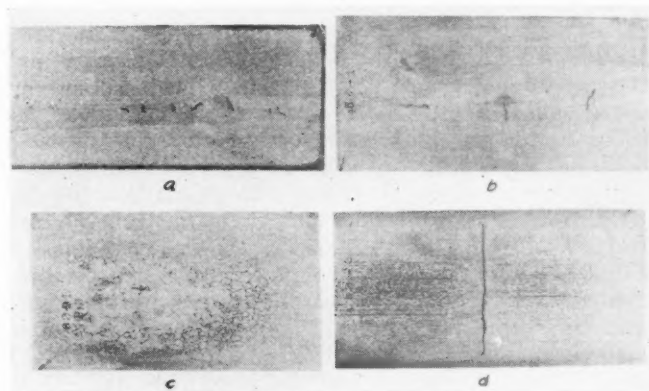


Fig. 10—Etched Horizontal Slices Cut from Heads of Rails in Which Shatter Cracks Had Been Produced by Heating in Hydrogen (Reproductions About One-Fourth Actual Size)

- a. Temperature 2200 to 2300 deg. F., Cooled in Air
- b. Temperature High Enough to Melt Surface of Rail Head, Cooled in Air. These Cracks Not Considered True Shatter Cracks
- c. Temperature 2300 deg. F., Cooled in Air
- d. Temperature 2300 deg. F., Cooled in Air, and Quenched in Water from 1500 deg. F.—Small Cracks and Large Internal Burst

for a considerable distance from the end of the rail. It is hoped to secure specimens with less depth of hardening for tests in the near future. It is also planned to try batter tests with a more rigid support of rail.

Temperature Limits for Controlled Cooling

The study of temperature limits for controlled cooling is in its preliminary stage. A mathematical study, made by Prof. W. L. Schwalbe of the University of Illinois, on the distribution of thermal strains in a cooling rail indicated that the effect of end conditions in cooling rails extends at most a distance of about three inches
(Continued on page 986)

Railroad Brief in Ex Parte 115

Holds that revenue situation must be strengthened if carriers are to go forward as useful servants of industry

WASHINGTON, D. C.

VOLUMINOUS briefs of the Class I railroads and various protestants in the Ex Parte 115 rate advance case were filed with the Interstate Commerce Commission on June 5. The railroad brief, a formidable document of 752 pages in four volumes, discusses in turn general questions; the proposed increases on coal and coke; the proposals with respect to iron ore, iron and steel, cement, lime, plaster and related articles, and petroleum and its products; and the relation of fifth and sixth class to first class in official classification territory.

The brief points out that the record which it discusses does not include certain proposals as to rates in the West, testimony as to which was heard on the Pacific coast. Generally speaking these are rates which apply in transcontinental territory and points west of transcontinental territory; and "issues presented by so much of the proposals as apply to these far western rates are being heard otherwise and will be submitted to the commission in due course, after the hearings have been concluded."

Volume I, covering the general questions, discusses the revenue situation of the carriers, explains the proposals and considers briefly questions of efficiency and economy in operations. It opens with a historical survey of the course of Interstate Commerce Commission decisions with respect to rate proposals and rate changes which have arisen since the autumn of 1929, discussing in this connection the Ex Parte 103 surcharges, the Ex Parte 110 petition out of which came the general rate level investigation in No. 26,000 wherein the commission declined to order any reductions in the rate structure. Then the Ex Parte 115 petition filed when the railroads, deprived of the Ex Parte 103 surcharges, found their costs increasing by reason of the restoration of the 10 per cent wage deduction and the operations of N.R.A. and "other inflationary factors for which the Administration was in part responsible." Noting that the Ex Parte 115 surcharges were generally estimated to have yielded "in the neighborhood of \$10,000,000 a month of sorely needed revenue" the brief continues to outline the carriers' unsuccessful efforts to have these charges extended beyond December 31, 1936, pending a decision on the present proposals.

Only a 4 Per Cent Increase Proposed

Rates and commodity groups embraced in the latter are next discussed in general terms as the brief leads up to its review of the evidence of traffic witnesses. First of these was D. T. Lawrence, chairman of the Trunk Line Association and of the Traffic Executive Association-Eastern Territory, who gave it as his opinion that the revenue derived from the proposed increases would be less than that yielded by the surcharges; and that not as much as a 4 per cent increase in freight rates could be expected if all the changes proposed were put into effect.

It is next recalled that J. E. Tilford, testifying with particular reference to the situation in Southern terri-

tory, pointed out that since many of the rates there "are below the commission's fixed maxima" it is reasonable to conclude that "a good part of the traffic could stand moderate increases to meet increased cost of operation." Mr. Tilford, the brief continues, "made it clear" that freight rates are not static, and that traffic officers "are alive to their responsibilities in this respect and make every effort to respond promptly to needed changes." Citing among others such changes as reduced rates to meet truck competition, country-wide store-door pick-up and delivery, the witness is said to have "expressed regret" that such adjustments "do not receive the publicity that attends a proposed change such as is involved in the proceeding now before the commission."

Further testimony of Mr. Tilford is cited to recall wherein the witness pointed out how the traffic committees dealing with the railroad proposals had kept three things in mind: First, that the proposed rates should not be so high as to cause substantial diversions of traffic to competing forms of transportation; second, an effort was made to disturb as little as possible origin and destination relationships, especially on the heavy commodities; third, the carriers realized that they would have to rely to some extent on a promise of increased business, but it was believed that this hope would not be justified without some readjustment of rates, in view of the increase in the cost of operation. Next comes a brief review of the testimony of R. C. Fyfe, chairman of the Western Classification Committee and of the Consolidated Classification Committee, who, from more than 30 years experience with classification matters, was able to point out how the railroads are continually making changes, "the effect of which have been to reduce materially the carriers' aggregate revenues and the packing costs of the shippers."

Must Progress with the Times

Turning to its discussion of "The Need for Increased Revenue" the brief, after some preliminary remarks on aspects of the proceeding which tend to make it both a revenue case and a rate case, goes on to consider the adequacy of present revenues. It observes at the outset of this section that "it is hardly necessary to expend time and effort to convince the commission that the railroads are at a critical stage, where the next few months or the next few years may determine finally whether they are to go forward in worthy programs of advancement, or whether they are to fall behind the march of progress and yield the supremacy to their competitors. The commission understands that the railroads, if they are to perform their full duty as essential agencies of transportation, must spend large sums of money in overcoming deferred maintenance and must meet the public expectation and demand with respect to improved facilities and service.

"In the field of passenger transportation, undoubtedly the railroads are undergoing a transformation which might be described as revolutionary. They are putting on streamlined trains, purchasing new and faster power,

quicken their schedules, air conditioning their equipment and adding comforts and luxuries unthought of a decade ago. In the field of freight transportation they are increasing the speed of their freight trains, granting pick-up and delivery service, investigating every possible means for making the service popular, improving their yards, decreasing their grades and striving to reduce operating expenses through the medium of expenditures for better track, faster equipment and improved facilities." Clearly, the brief adds, all of this costs money; and it follows through with citations to show that "the need of the railroads for ampler revenues has been recognized by the commission in every case which involves a readjustment of rates that has been submitted to the commission in recent years."

Exhibits and testimony offered by Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, are recalled to show that in 1936 net railway operating income was approximately \$200,000,000 less than in 1930; and that the average for 1930 and 1931 was \$30,000,000 more than the 1936 figure. From which comes the observation that "apparently the commission, contemplating a situation wherein the net railway operating income for the average of the years 1930 and 1931 amounted to \$697,000,000, which was more than \$550,000,000 less than the net railway operating income in 1929, had no difficulty in concluding that there should be a substantial increase in revenue" as authorized in Ex Parte 103; and the plea that "if the commission at that time considered the situation dangerous and the income inadequate, we respectfully submit that the present situation should have an equally strong appeal, particularly when it is remembered that the net income of the Class I railroads for the first two months of 1937 shows a deficit of \$10,324,925."

1936 Record No Argument for Rate Cut

It is further pointed out that but for the surcharges, the 1936 net railway operating income "would have been very little better than 1931." Thus the railroad counsel think that "it is a conservative statement that if the surcharges had been embodied in permanent tariffs, so that they did not have the vice of emergency rates, the commission would not seriously consider at this time a reduction in such rates." The brief adds that "No one could argue plausibly that the statistics for 1936 justify a reduction in rates." In that year the revenue per ton mile was 0.975 cents while in 1930 it was 1.063 cents. Note is taken of the "gratifying indication" of some improvement in net railway operating income in 1937, but attention is called to the fact that tax accruals in January and February of this year exceeded the corresponding 1936 figure by \$14,500,000—"a very disturbing indication indeed."

Considering operating results in recent years, the brief holds it to be significant that the average net income for the years 1931 to 1936 inclusive has been \$25,041,313. This it calls "a sorry return indeed to the stockholders"—a record which "does not present much encouragement in the way of financing future requirements by the sale of capital stock." Also, the prominence of red figures in the 1937 reports of individual roads are cited as the brief goes into its consideration of prospects for this year. It finds "nothing in the record" to indicate that "we are likely to go much beyond the year 1931, either in traffic or revenue, and in that year 41.85 per cent of the mileage of the country was operated at a loss, certainly not a situation which indicates that relief should be denied." The latter is put forth as particularly true when it is considered that the proposed increases would

not have the effect of establishing rates on a higher general basis than prevailed in 1931, when the average revenue per ton mile was 1.051 cents. Applying a 4 per cent increase to the 1936 revenue per ton mile of 0.975 cents would produce a ton mile basis of 1.014 cents. "Indeed," the brief adds, "we are not asking for a ton mile basis which would be even as high as prevailed in 1932 when the figure was 1.046 cents."

Reference is made to the beneficial effect of railroad prosperity on industries from which the carriers purchase goods; to exhibits showing how the welfare of railway employees has not been neglected, despite the unsatisfactory revenue situation; to the bond maturities which must be met in the next few years; and to the upward trend of prices and material costs. In the latter connection it is pointed out that "taking fuel and materials other than fuel, the total increased annual expenditures on the 1937 basis over May, 1933, basis aggregate \$225,455,000. Recent advances in prices indicate that the cost of materials and supplies this year will be \$85,000,000 in excess of what was estimated a little over three months ago. Figures on the cost of coal are given to show that the railroads are likely to be faced with an increase of 11 per cent in the price of that commodity. In the face of such a situation, the brief suggests that "the request of the railroads for an increase in the rates on coal is modest indeed."

Scaling the Mountain Peak of Prices

Similar rises are cited in the prices of other commodities as the brief leads up to the conclusion that "we have obviously, in recent months, been subjected not to a gradual increase in commodity prices but to an upward swing which is almost without precedent in recent years. It is as if, beginning in 1933, we were moving over a gradually rising plateau until we reach a mountain peak, which the country has been called upon to scale in the last six months."

Following a brief summary of the foregoing is the section dealing with the situation in the western district. In the latter connection there is a review of the testimony of L. G. Reymiller, assistant manager of the statistical bureau of the western lines, who is held to have indicated "the really desperate situation of the western carriers."

With reference to the need for new equipment the brief cites the testimony of J. M. Symes, vice-president of the Association of American Railroads in charge of the Operations and Maintenance Department. Mr. Symes pointed out that if there is a 5 per cent increase in traffic, comparing the 1937 peak with that of 1936, it will be necessary to supply 60,000 additional serviceable freight cars and 800 additional serviceable freight locomotives. Calling attention to the actual increase in 1937 carloadings of more than 13 per cent over 1936, and to the fact that there has been no corresponding rise in revenues, "due to the discontinuance of the surcharges," the brief observes that recent trends indicate, "in a most striking way," that the railroads must spend large sums in increasing the supply of equipment, "if we are not to be subjected to car shortages, with corresponding demoralization of business and consequent damage to the public interest."

Pay-Off Comes in Dollars—Not Statistics

Before turning to questions of efficiency and economy, the brief considered the testimony of witnesses for protestants, including that of Charles E. Bell, who appeared for the American Paper and Pulp Association,

the Traffic Conference of the Paper Industry and the Glass Container Association of America; and H. J. Saunders, who spoke for the National Coal Association. Mr. Bell's exhibit is challenged by citation of a figure which the brief says was erroneous by \$50,000,000 as a result of faulty subtraction; and of another figure which is called "so obviously erroneous that it should have attracted immediate attention." While the brief stipulates that "no one questions Mr. Bell's experience, honesty or ability," it continues to observe that "obviously there was something wrong with the clerical assistance which he received in the preparation of this important exhibit." The keynote of Mr. Bell's testimony is said to be the fact that the operating expenses per unit have declined in greater proportion than operating revenues per unit. But the brief disposes of this contention with the observation that "the railroads pay off on the dollars which are left in the treasury at the end of the year and not upon nice statistical estimates as to what is left when cost per unit is subtracted from revenue per unit."

Operating Efficiency Nowhere Questioned

Questions of efficiency and economy are dismissed briefly by reference to the testimony of M. J. Gormley, executive assistant to the president of the Association of American Railroads, in connection with the original Ex Parte 115 application. "Indeed," says the brief, "it would seem to be a safe observation that nowhere is there any serious attempt to indicate that the railroads, in recent years, have not been operated efficiently and economically, thereby meeting one of the tests laid down by the Transportation Act." The final section of the brief's Volume I is devoted to citations bearing upon the lawfulness of the proposed rates.

At the end of Volume IV is a brief conclusion which states that the carriers have attempted to present their case "in all its aspects, whether it be considered as preeminently a revenue or a rate case or as involving features common to both." Counsel state further that they think it has been shown "that the railroads are greatly in need of revenue; that the increases proposed will not result in a return which is anything like a fair return; that if the railroads are to go forward as useful servants of industry, their revenue situation must be strengthened; that the rates proposed will have no tendency to retard or divert traffic; and that the rates proposed are, in and of themselves, reasonable and nondiscriminatory."

Shippers File Briefs

Among the other briefs filed were those of the National Industrial Traffic League, the Anthracite Institute, the American Paper and Pulp Association, the Cement Manufacturers Association, Traffic Bureau of Nashville, Tenn., Committee for Coke Producers, the Traffic Conference of the Paper Industry, the Lake Superior Iron Ore Association, and the Minnesota Iron Ore Interests.

Railroad briefs in that part of the Ex Parte 115 proceeding designated "Transcontinental-Mountain-Pacific Rates" are due on July 15 while those of protestants must be filed not later than August 10. This phase of the case is assigned for further hearing before Commissioner Aitchison in Washington on September 8 to bring testimony down to date with the understanding that affidavits in lieu of personal production of a witness will be acceptable.

Oral arguments will follow, after which parties may file by September 15 briefs confined to new matter introduced at the September 8 hearing.

More About Rail Failures

(Continued from page 983)

from the end. This would seem to make it possible to use specimens of rail one or two feet long for the study of: (1) The effects of different temperatures of rails when placed in the boxes, (2) different temperatures of rails when removed from the boxes, and (3) different rates of cooling rails in the boxes. The plan as outlined contemplates the taking of samples from heats of rail steel in the mills and cooling each specimen in an individual insulated cooling box, in which the temperature could be observed during the entire period of cooling.

This series of tests will undoubtedly be slow, and it is probable that such series will have to be run at two or more mills. However, it has seemed the best available method of approaching the problem of determining proper temperature limits for the controlled cooling of rails.

Rail Steel Heated in Hydrogen

During the past year a considerable amount of work has been reported from abroad tending to show that flakes, which seem to be about the same as shatter cracks, can be produced in various grades of steel by heating the steel in hydrogen gas. In order to determine whether shatter cracks can be produced in rail steel heated in an atmosphere of hydrogen, tests have been made using a carbon-pile electric furnace in the University of Illinois shop laboratories. Commercial hydrogen from cylinders was introduced through a 1/8-in. iron pipe and allowed to escape and burn at the peep hole in the furnace door. Five runs have been made in this furnace, subjecting specimens from three different rails to an atmosphere of hydrogen, the rails being selected from heats which had no shatter cracks in any of the three test rails from that heat.

Fig. 10 shows photographs of sections of four specimens in which cracks were produced in rails, originally free from shatter cracks, by heating them in hydrogen. These experiments, together with the results reported from Europe, offer reasonable proof that hydrogen can be one factor which produces shatter cracks or flakes in steel, but do not justify the conclusion that hydrogen is the only factor which can produce these cracks.

Special Tests

In the days of Bessemer rails actual wheel loads in service were rarely severe enough to start internal fissures, even in shatter-cracked rails. However, some fissures have been found in Bessemer rails with long service records. Four such rails with transverse fissures were sent to the test party by L. Yager, assistant chief engineer of the Northern Pacific. Etch tests of these four rails failed to indicate any shatter cracks at other sections than that of the fissure, but they showed many more segregation streaks than most open-hearth rails. Whether the fissure developed from a single shatter crack or from a segregation streak cannot be told.

Two used 100-lb. rails were received from the Chicago & North Western that had been removed from service because inspection disclosed a longitudinal seam, or "cold-shut" at the top of the web. This seam was about 15 ft. long in each rail. When subjected to rolling-load tests the rails did not fail under loads of 40,000 lb. repeated 1,498,000 and 513,000 times, respectively. In the drop-of-potential test the second rail showed a slight indication of spread of the crack. The first rail was then sub-

jected to 75,000-lb. wheel load and it suffered a progressive failure, starting at the seam, after 280,000 cycles of load. The second rail was subjected to 1,098,000 cycles of a 60,000-lb. wheel load when it, too, failed at the seam. This illustrates the possibility of a progressive failure starting at a longitudinal seam.

During the last few years there have been reported to this laboratory a number of cases of rail breakage starting in the web within the joint bars. In some cases the crack started at the junction of the head and the web, while in others the crack started from a bolt hole. A metallographic examination of the metal in the web in two "A" rail specimens which had developed web failures in service showed steel above the eutectoid composition, with excess carbide at the grain boundaries and "needles" in the interior of crystalline grains. Hardness readings were taken on the material in the web and Brinell hardnesses up to 331 were found.

Under rolling-load tests about six web failures of rail specimens have occurred during the course of the investigation. Figuring the theoretical shearing stresses set up in these tests it is found that the effective stress concentration factor at bolt holes in the web seems to be about 3, at a raised letter on the web about 2, at a fillet between the head and the web about 1.5 and at a seam below the fillet about 2. These values are based on the results of fatigue tests of web material in shear. Further study of this type of failure is in progress.

Special test rails have been laid in nine locations. One test location is on the Dayton-Toledo line of the Baltimore & Ohio, another is on the Pittsburgh division, and four are on the Cumberland division of the same road. One test location is on the Atchison, Topeka & Santa Fe near Matfield Green. Four failures have been reported to date, all in rails that were from heats that have developed shatter cracks in etch tests.

Communications and Books . . .

Many Jobs

TO THE EDITOR:

Reading of the account of G. J. Hardwick of Waco, Texas, in the Odds and Ends of May 15 led me to figure up the various jobs I have worked at with the Pennsylvania since I started on February 8, 1913. Unless I have overlooked some, I figure I have worked at 18 different kinds of work on 12 divisions of the Pennsylvania and the Washington Terminal, as follows:

Leverman
Telegraph operator
Telephone message operator
Assistant block operator
Block operator
Assistant train director
Train director
Train dispatcher
Movement director
Acting assistant trainmaster
Ticket clerk
Acting extra agent
Switch tender
Special traffic study
Safety inspector
Acting safety supervisor
Assistant power director
Power director.

I am still young and there is a lot of the system I have not covered yet.

A. H. RICKARDS,
Power Director, Pennsylvania.

New Book

Report of the Mechanical Advisory Committee to the Federal Co-ordinator of Transportation. Published by the Mechanical Division, Association of American Railroads, 59 East Van Buren street, Chicago. 680 pages, 8½ in. by 11 in., illustrated. Price to members of the Mechanical Division, \$7.50; to others, \$15.

This volume includes the formal report to the Federal Co-ordinator of Transportation of his Mechanical Advisory Committee which was presented to the Co-ordinator at the end of 1935. To this committee, composed of L. K. Sillcox (chairman), first vice-president, New York Air Brake Company, F. W. Hankins, assistant vice-president-chief of motive power, Penn-

sylvania Railroad; F. H. Hardin, now president, Association of Manufacturers of Chilled Car Wheels; John Purcell, assistant to vice-president, Atchison, Topeka & Santa Fe; C. J. Bodemer, superintendent machinery, Louisville & Nashville, and W. J. Patterson, chief of the Bureau of Safety, Interstate Commerce Commission, were assigned innumerable questions concerning the adequacy of present motive power and rolling stock and the possibilities for a wide range of, proposed new types of equipment or transportation schemes, many of which lacked feasibility.

The formal report of the committee covers studies in the field of steam motive power, internal-combustion locomotives, railway electrification, freight cars, containers, various types of rail-highway vehicles, passenger cars, rail motor cars and stream-line trains. One or more sections of the volume are devoted to each of these nine major projects. The treatment is thorough-going. In the case of steam locomotives, for instance, the committee has reviewed designs for 61 types, all acquired since 1925. The study includes economics of locomotive life and replacement, locomotive characteristics, and a consideration of practically all of the component parts of the machine.

The freight-car portion of the report is especially comprehensive; 16 sections are devoted to it. The first of these deals with the reduction of tare weight and is followed by a section devoted to a study of the methods of the economic evaluation of light weight in freight-train car construction. Other sections of this portion of the report are concerned with materials and methods of construction, non-harmonic springs, roller bearings, wheels, brakes, couplers, draft gears, and various special types of cars, including the all-purpose car about which so much was heard a few years ago.

The portion of the report devoted to passenger cars, while less extensive than that dealing with freight cars, is nonetheless comprehensive in treatment. One section is devoted to the design of a typical light-weight coach, in which are discussed questions of high speeds, air resistance, materials and restrictions, and which contains a comprehensive set of outline specifications for such a car, including calculations of detail parts of the structure.

Little of the material is of a highly controversial nature. In the matter of evaluation of light-weight, however, objections have been raised to the method used in arriving at definite values for savings effected by light-weight cars. Furthermore, changes in price relationships between carbon and high-tensile steels since this report was prepared, to a very large degree, make the specific comparisons in this section of little current value. On the whole, the report contains a vast amount of valuable data, some of which will become obsolete as time passes, but to much of which frequent reference may be made with profit for some time to come.

NEWS

Congress Receives TVA Rate Report

Calls the present structure a barrier to wide-spread industrial development

On June 7 President Roosevelt sent to the Congress a report of the Tennessee Valley Authority which declared that the country's freight-rate structures were arbitrary barriers to commerce, competition and wide-spread industrial development. The report, which was prepared by an economist of the TVA, declared that the country as a whole had no national freight-rate structure and that rates in the Eastern or official territory were far less than those in other sections of the country. Taking the average of rates in the Eastern territory as 100, said the report, the Southern rates averaged 139, the Western trunk-line rates 147, Southwestern 175 and Mountain Pacific 171.

J. Haden Alldredge, economist of the TVA, said that "official territory shippers can come into the other territories on somewhat lower levels of rates, mile for mile, than shippers residing in those territories have to pay for shipping similar articles wholly within their own territories. Thus, one has here something remarkably similar to the working of a protective tariff, to the extent that certain favored interests effectively strive to protect themselves at home while retaining privileges elsewhere." The report went on to say that manufacturers and producers are at a disadvantage because of the lower rates available to competitors in Eastern territory where the largest markets exist. Any attempts to meet such competition generally entail a deduction from prices received by the disadvantaged producer, it continued. In this way "manufacturing in the outlying territories is hampered, discouraged and retarded."

To solve these problems of unfair rates to various sections of the country, Mr. Alldredge advocated either voluntary action by the carriers, administrative procedure of the Interstate Commerce Commission, or legislation. Members of the commission declined to make any comment on the report. The President made no comment other than urging that congress make the report available as a public document.

Arthur E. Morgan, chairman of the board of TVA, in the letter of transmittal to the President, declared that "there is no national freight rate structure, but rather a composite of regional structures." "This

survey shows," he added, "that the present territorial freight rate boundaries, which are the outgrowth of tradition, constitute barriers against the free flow of commerce which are hampering and restricting the normal development of the nation as a whole by preventing a full utilization of the varied natural resources that exist in the different regions of the country. The report suggests that the establishment of a uniform principle of making interterritorial freight rates will aid the commercial development of such regions as the Tennessee Valley and redound to the benefit of the nation as a whole."

R.F.C. Railroad Loans

The monthly report of the Reconstruction Finance Corporation for May shows disbursements to railroads (including receivers) as \$522,126,239 and repayments as \$177,303,417.

Retirement Bill

The Senate committee on interstate commerce voted early this week to report favorably the railroad retirement bill with amendments proposed by the management and labor committees which worked out the compromise agreement. Meanwhile the House committee on interstate and foreign commerce was completing the drafting of a similarly-amended bill for favorable report in the House before the end of the week.

Wage Parleys Continue

Wage parleys between the 15 non-operating brotherhoods and the Carriers' Conference Committee were opened at Chicago on June 3 with a formal presentation of the union's demands. Adjournment was taken on the following day and negotiations were resumed on June 8. The demands of the brotherhoods provide for a wage increase of 20 cents an hour, a guarantee of full-time employment for all regularly assigned forces and a guarantee of two-thirds of full time for stand-by forces. These guarantees do not insure individuals an annual income but are intended to fix the number of positions under each class and secure the maximum amount of work for employees as a group.

On June 9 negotiations were transferred to Washington, where they will be resumed on June 15, because members of the conference had made previous engagements that required their presence in that city, and in order to proceed with the negotiations with full representation and without delay.

Banking Houses Hit by Truman

Missouri senator denounces financial firms as looters of railroads

Senator Truman of Missouri, a member of Senator Wheeler's subcommittee investigating the financing of railroads and railroad holding companies, appeared before the Senate on June 3 and lashed out at such banking firms as Speyer & Co. and Kuhn, Loeb & Co. and J. & W. Seligman & Co., saying that these firms had aided and abetted the looting of such large railroad systems as the Frisco, the Rock Island, and the Chicago, Milwaukee, St. Paul & Pacific and that now was the time for the Congress to pass some legislation which would prevent these banking companies from circumventing the Interstate Commerce Act by acquiring control of more than one railroad through the device of holding companies. Senator Truman outlined in detail the evidence which his committee has uncovered during its thorough investigation of the activities of the Van Sweringen brothers and their associates in gaining control of the Missouri Pacific, Chesapeake & Ohio, Pere Marquette, Chicago & Eastern Illinois, Erie, and the Nickel Plate.

In his remarks in the Senate, Senator Truman said that "the looting of the St. Louis-San Francisco by Speyer & Co. is a glaring example." "Between November, 1929, and April, 1930," he asserted, "Speyer & Co. bought 25,000 shares of Gulf, Mobile & Northern stock for \$951,000. On December 9, 1930, when the board ratified the purchase of the stock, it was worth about one-third of what Speyer & Co. paid for it. If Speyer & Co., the bankers for the Frisco, had been compelled to keep the stock of the Gulf, Mobile & Northern, they stood to lose \$607,000. What did they do to keep from standing this very substantial loss? Over a year after the transaction they claimed they had made the purchase for the St. Louis-San Francisco." Senator Truman compared the alleged looting of the Frisco by Speyer & Co. with the robbery of a Rock Island train in 1873 by Jesse James and told the senators that they could see "what 'pikers' Mr. James and his crowd were alongside of some real artists." He also warned that if the Congress did not do something about this problem, the committee would be investigating for several years to come.

On June 4 the Senate Interstate Com-
(Continued on page 994)

Brookings Study of Regulatory Boards

Reports to Senate committee on investigation of executive agencies of government

The Senate's select committee on investigation of executive agencies of the government, of which Senator Byrd of Virginia is chairman, has made public a report prepared by the Brookings Institution on government activities in the regulation of private business enterprise. After a general consideration of regulation in Part I, the report proceeds in its Part II to conclusions and recommendations as to the nature of regulatory agencies, the allocation of functions, procedure of regulatory authorities, enforcement, control over the acts of regulatory authorities, the set-up of the independent boards and commissions, and a system of administrative courts.

The report's summary follows in part:

"It appears desirable to transfer certain features of the regulatory work now carried on by the Bureau of Air Commerce to the Interstate Commerce Commission.

"It seems desirable to transfer certain regulatory functions of the Maritime Commission to the Interstate Commerce Commission.

"Although the arguments for integrating the independent boards and commissions into executive departments appear on the surface convincing, serious difficulties appear to stand in the way of their adoption. It is probable that the independence of these authorities is necessary to give stability to long-range policies and relative freedom from pressure groups. It is impossible to effect any clear-cut division of the functions of these commissions into administrative on the one hand and judicial on the other. The commissions are dealing not only with the application of law to facts but the application of policy to facts. It is not deemed desirable to give the chief executive control over the policy and administration of these regulatory bodies unless his acts were made more responsible to the legislative body and to the courts. Probably most of the difficulties that now exist with respect to these boards and commissions would be removed by a proper system of administrative courts, by proper procedures, forms of administrative action, remedies, enforcement methods, and by a proper implementation of the law.

"If a proper system of administrative courts were established, it would make for a much stronger enforcement of the regulatory laws and yet afford to citizens better guaranties of their rights. Administrative law would be no longer tightly enmeshed within the net of common law and constitutional law, and it would be free to develop criteria and norms applicable to the regulatory situation. The public law developed by Congress and by quasi-judicial officers, boards, and commissions would be further developed by the administrative courts, and thus a realistic and clear-cut and workable administrative law would supplant the confusion that now exists. It

is believed further that the establishment of an administrative court system would eliminate much of the present confusion of powers among the independent boards and commissions.

"It is impossible to segregate absolutely from one another such functions as determination of policy, public management, investigation and decision, so as to apportion each group of activities to different agencies; but it is possible to increase efficiency and protect the rights of citizens through certain limited reallocations of work and through a reorganization of the set-up, relationships and procedures of the administrative-regulatory system itself. This system, as a whole, should be left substantially independent in all essential features of its work and should not be integrated into executive departments.

"It cannot be too strongly emphasized that the problem of the reorganization of the function of regulation and control over business and industry is far broader than the mere shifting of functions among various governmental units or the elimination of certain agencies. It involves as well an investigation of the subject matter to be regulated, the types of regulation attempted, the nature of various regulatory processes, and the methods and procedures by which regulations are carried out, including forms or types of administrative action, enforcement methods, and various types of control over the acts of the regulatory authorities."

Railroad Employment in May

Class I railways, excluding switching and terminal companies, had 1,153,839 employees in May, an increase of 2.08 per cent over April and of 8 per cent over May, 1936, according to the Interstate Commerce Commission's compilation based on preliminary reports. The index number for May, based on the 1923-1925 average as 100, stood at 64.6.

Qualifications of Motor Carrier Drivers

The Interstate Commerce Commission, Division 5, has modified its motor carrier safety regulations so as to relieve motor carriers of the requirement of continuing to report the employment of new drivers. Meanwhile, however, it has issued another order which requires a census of drivers as of July 1. All data in connection with the latter must be filed by September 15.

Railroads as 1934 Income Tax Payers

Secretary of Treasury Morgenthau this week made public the second of a series of tabulations compiled under the direction of Commissioner of Internal Revenue Helvering from corporation income and excess-profits returns for 1934. Railroads are included among the groups for which data are shown. Of the 671 steam railroad companies filing 1934 returns, 186 showed a net income and 458 reported no net income and 27 were inactive companies showing no income data.

The 186 roads reporting net income paid income taxes totaling \$12,096,000 and excess profits taxes of \$7,000. The 458 reporting no net income had a composite deficit for the year of \$370,216,000.

Examiner Reports on Seatrains Rates

Would require establishment of through routes with steamship line

Establishment of through routes and joint rates in connection with Seatrains Lines, Inc., between points in Official territory and Southwestern territory and a portion of Southern territory has been recommended to the Interstate Commerce Commission in a proposed report by Examiner E. J. Hoy. The examiner who considers several questions in connection with Seatrains' operation on its route between Hoboken, N. J., and New Orleans, La., via Havana, Cuba, would make joint rates with the ocean-going car ferries higher than those in effect over break-bulk rail-water routes, but lower than all-rail rates.

The report in No. 25727, Seatrains Lines, Inc., vs. the Akron, Canton & Youngstown Railway Company, et al., also includes No. 27011, a complaint of the Gulf Refining Company alleging that certain rates on motor fuel moving in tank cars in connection with Seatrains between Carney's Point, N. J., and West Port Arthur, Texas, are unreasonable, and No. 27445, a complaint of steamship lines alleging that the maintenance by certain railroads of rates with Seatrains no higher than joint rates in effect with break-bulk water lines is in violation of the Interstate Commerce Act.

Seatrains' complaint was filed when most of the railroads refused to permit delivery of their cars to its vessel under an amendment to Association of American Railroads car service rules which provided that cars of railway ownership must not be delivered to a steamship, ferry or barge line for water transportation without permission of the owner filed with the Car Service division. It assailed as unlawful the refusal of defendants, other than the Missouri Pacific and the Texas & Pacific and certain of their connections, to recognize the existence of through routes in connection with Seatrains; their action "in discouraging, delaying and interfering with shipments over such routes"; and their refusal to execute through bills of lading for such shipments. The complainant further contends that if the commission should find that through routes do not exist there is nevertheless a violation in the failure of the railroads to establish such routes and joint rates on a basis no higher than those maintained with competing steamship lines; as there is, it is further alleged, in cases where there are no joint rates with competing steamship lines, but the railroads maintain higher rates to and from the ports on traffic moving in connection with Seatrains. Finally, there is cited the failure of the railroads to execute through export bills of lading for shipments to Cuba, via Seatrains.

Dealing with the foregoing in turn the examiner considers the relations of the railroads with Seatrains and finds that the defendants are parties to numerous joint

rates with Seatrain and numerous proportional rates applicable on traffic transported by Seatrain, and freely accept shipments tendered by Seatrain for further transportation on through bills of lading. From these and other facts he feels warranted in reaching the conclusion that "through routes now exist over the lines of the defendants and Seatrain between points in Trunk Line and New England territory on the one hand and points in Southwestern territory on the other hand." On the question of public interest in through routes between Seatrain and the railroads, the report rejects the contention of defendants that an adverse finding should be based on the fact that the all-rail routes and the joint routes in connection with the break-bulk water lines are more than sufficient to handle all available traffic. The examiner concedes this but nevertheless holds that it "is not a sufficient reason for depriving Seatrain of an opportunity to participate in the traffic or for depriving the public of the admittedly superior service afforded by Seatrain."

As to the level of joint rates which should apply via Seatrain, the report finds that "because of the longer time in transit, Seatrain's service is not as valuable to the shipper as that over the all-rail routes." It also finds that "the service of the break-bulk lines is not as valuable to the shipper as Seatrain service, and that the break-bulk lines 'could not long compete with Seatrain at an equality of rates, particularly if the Seatrain service were expanded sufficiently to handle all available traffic.'" Thus the conclusion that "reasonable joint ocean-rail rates in connection with Seatrain would be the following: (a) First-class (column 100) rates that are 17 cents higher than the first-class (column 100) rates from and to the same points prescribed in the twenty-fifth supplemental report in *Consolidated Southwestern Cases* for application via New Orleans; (b) other class rates and commodity rates that take percentages of first class (column 100) made by applying to the first-class (column 100) rates set forth above the same bases as provided in Finding 11 of the twenty-third supplemental report in *Consolidated Southwestern Cases*. The record does not clearly show what commodities move in connection with Seatrain on commodity rates that are not percentages of the first-class (column 100) rates, and accordingly no finding can be made as to such rates. Joint rates should be established, however, on commodities that so move on bases that will harmonize with those above set forth for class and other commodity rates."

On the refusal of the railroads to issue through export bills of lading on Seatrain shipments to Cuba, the examiner finds no provision of law which imposes upon rail carriers a duty to execute such bills when the issuance "would necessarily require the taking of their freight cars on a vessel and delivery of same in a foreign country." The action of the railroads in this connection is found to be neither unreasonable nor unduly prejudicial. As to the through domestic bills of lading, the examiner finds it unnecessary to consider the issue, since he believes that if through routes with Seatrain are found to exist, the defendant

railroads "would recognize their legal duty to issue through bills of lading over such routes." Also, he finds in connection with alleged violations of section 7 of the Interstate Commerce Act, that "the record contains no evidence sufficient to show any combination, or agreement between common carriers subject to the act to prevent the continuous carriage of freight."

The examiner recommended that complaints in Nos. 27011 and 27445 be dismissed with findings that the rates assailed are not shown to be unduly prejudicial, unreasonable or otherwise unlawful.

Pennsy's Broadway Limited Celebrates 35th Birthday

On June 15, the Broadway Limited, leader of the Pennsylvania's fleet of long distance passenger trains between the Atlantic Seaboard and Chicago, will celebrate the 35th anniversary of its inauguration. Established, June 15, 1902, as the Pennsylvania Special, this all-Pullman train was renamed the Broadway Limited on November 24, 1912.

In recent years the Broadway's running time has been quickened in several stages. On April 24, 1932, the New York-Chicago schedule was reduced from 20 hours to 18 hours. On April 30, 1933, the terminal-to-terminal run was cut to 17¾ hours; on April 28, 1935 to 17 hours; and on September 29, 1935, to the present running time of 16½ hours.

Club Meetings

The Traffic Club of Newark, N. J., will hold a traffic symposium, "Trucking Today," on June 14, at 8 p.m., in the Chamber of Commerce auditorium.

The Long Island Railroad Veteran Employees' Association will enjoy an outing to Great River, N. Y., on June 20. The headquarters will be the Suffolk County Republican Club, where all sports facilities will be provided.

The final meeting for this season of the New York Chapter, Railroad Enthusiasts, Inc., will be held in Room 2726, Grand Central Terminal, New York, on June 25. At that time, J. M. Fitzgerald, vice chairman of the Eastern Railroads' Committee on Public Relations, will be the principal speaker. A number of railroad officers will be in attendance, including F. E. Williamson, president of the New York Central.

Canadian Officer Wins Office Management Award

In recognition of his accomplishments in the field of office management, C. U. Stapleton, manager of office services of the Canadian National, was presented the Lefingwell Medal at the annual meeting of the National Office Management Association, in Chicago, on June 6. Mr. Stapleton is the first Canadian and the first railroader to receive this award.

After twelve years' experience in office equipment sales and installation in the United States, Mr. Stapleton joined the staff of the Canadian National in 1919, as office method expert. In 1923 he became supervisor of office methods and was responsible for the designing and installation

of a railroad subject filing system now used in over 700 offices of the system. Mr. Stapleton was appointed manager of office services in 1927, and also given charge of operating a printed-forms control plan. He served as president of the National Office Management Association during 1934-1935.

N. Y. Railroaders Enjoy Fiesta

Over 830 railroad and supply men and guests thronged to the New York Railroad Club outing at the Westchester Country Club, on June 8, a record attendance. A golf tournament, in which 396 players participated, featured the festivities of the day. Offered every year to the contestant holding the lowest net score in all classes, the Brady Cup was presented to J. H. Hudson, secretary of the American Brake Shoe & Foundry Company. A four-man team representing the same firm won the Vreeland trophy, awarded to the winning company team in the railroad-railroad supply tournament. They were: J. H. Parsons, George Duffy, John Cafone, and J. T. Talbot.

The railway supply team beat the railroad men to the tune of 15 to 6 in a baseball game umpired by Gene Tunney. C. A. Gill, general manager of the Reading and Central of New Jersey, and president of the club, presided at the dinner which closed the day's activities.

New Cascade Inaugurated June 13

A de-luxe, all-Pullman, air-conditioned train, named the "Cascade," was placed in service by the Southern Pacific between Seattle, Wash., and San Francisco, Cal., to replace a train of that name which became the "Oregonian." The new Cascade, carrying sleeping cars with sections, drawing rooms and compartments, as well as a bedroom car, a dining car, and a lounge car, with soda fountain, shower baths, barber and valet service, leaves Seattle at 1 p.m. and arrives in San Francisco at 1:32 p.m. the second day, covering the 958 miles in 24 hr., 32 min. Returning, it leaves San Francisco at 5 p.m. and arrives in Seattle at 5:30 p.m. the second day. The Oregonian, formerly the Cascade, now carries standard sleeping cars, tourist sleeping cars and coaches and operates on the old schedule. It leaves Seattle at 4:20 p.m. and arrives in San Francisco at 6:52 p.m. the second day, and, returning, it leaves San Francisco at 6:40 p.m. and arrives in Seattle at 9:20 p.m.

Hearings on Barge-Line Bill

Hearings on H.R. 4213, a bill to provide government barge line operation on the Savannah River, were held on June 2 before the Senate commerce committee. The bill encountered some opposition before the Senate committee, but had passed the House unanimously and had not been opposed in the House committee. Joseph G. Kerr, chairman of the Southern Freight Association, appeared in opposition to the bill on behalf of the southern railroads and the Association of American Railroads. He told the committee that it would be unfair for Congress to permit a subsidized operation of this type, free from taxes and other costs of doing business, to compete with the railroads which paid sub-

stantial amounts in taxes. Mr. Kerr also criticized the annual reports of the Inland Waterways Corporation on the ground that, while these reports claimed that profits were being made, the real facts were that the corporation was losing money.

Statements in support of the bill were made by Senators George and Russell, of Georgia; Senator McAdoo, of California; Senator Byrnes, of South Carolina, and J. Hampton Moore, president of the Atlantic Deeper Waterways Association. On June 8 the Senate Commerce Committee reported the bill favorably.

Fourth Section Revision Misses U. S. Chamber O.K. by 7 Votes

By the narrow margin of seven votes, the member organizations of the Chamber of Commerce of the United States have refused to approve a committee proposal for repeal of the long-and-short-haul clause of the Interstate Commerce Act. It takes a two-thirds majority to commit the Chamber to any proposition, and in this instance the affirmative votes lacked seven of being a two-thirds majority.

The vote, taken by means of a special referendum, was announced at Chamber headquarters on June 10 as follows: For the committee recommendation, 1,069; against the recommendation, 545. The question was sent to the membership forty-five days ago. As is usual in the Chamber's procedure the referendum pamphlet carried not only the committee report supporting its recommendations, but also arguments in opposition to the recommendations.

The proposition voted upon reads: "The Committee recommends that the long-and-short-haul clause should be eliminated from the fourth section of the Interstate Commerce Act, and that

a provision be enacted placing the burden of proof upon the carrier to justify long-and-short-haul rates, fares, and charges against claims of violation of other applicable provisions of the Interstate Commerce Act."

Equipment Depreciation Rates

The Interstate Commerce Commission has issued another series of sub-orders in No. 15100, Depreciation Charges of Steam Railroad Companies, modifying previous sub-orders prescribing depreciation rates applicable to the equipment of several railroads. The Chicago, Burlington & Quincy and the Missouri Pacific are included among the 16 roads affected by the present series of orders; the other 14 are small roads. The composite percentages for all equipment, which are not prescribed rates but the averages of the percentage rates fixed for each type of equipment, range from 2.38 per cent for the Louisville, New Albany & Corydon to 8.74 per cent for the Mississippi Export.

The composite figure for the Burlington is 4.04 per cent. It derives from the following prescribed rates: Steam locomotives, 3.28 per cent; other locomotives—Zephyr type, 6.08 per cent; other locomotives not of Zephyr type, 8.78 per cent; freight train cars, 4.29 per cent; passenger train cars—Zephyr type, 6.1 per cent; motor cars, 8.4 per cent; other passenger train cars, 2.98 per cent; work equipment, 4.85 per cent; automobiles, buses and trucks, 15.95; exhibition equipment, 1.86 per cent.

The Missouri Pacific's composite figure—3.72 per cent—derives from the following prescribed rates: Steam locomotives, 3.47 per cent; freight train cars, 4.01 per cent; passenger train cars, 3.02 per cent; floating equipment, 3.02 per cent; work equipment (leased), 4.7 per cent; work

equipment (owned), 3.65 per cent; miscellaneous equipment, 11.06 per cent.

New Phone Information Bureau for Penn Station, N. Y.

The Pennsylvania has recently revamped the facilities of its telephone information bureau in Pennsylvania Station, New York, in order to do away with the delays to inquirers. Officers of the road estimate that the information Bureau of the terminal receives an average of 9,000 telephone calls daily, and on days of heavy travel 15,000 calls have been recorded. An addition in calls resulting from increases in passenger travel recently have made necessary the modernization of equipment and expansion of personnel.

Located in a sound-proof room, the new bureau is equipped with 15 double desks, each accommodating two attendants, whereas, previous to reconstruction, attendants were assigned to places on either side of a long table. Equipment installed for quick reference by the staff includes two bulletin boards, which show inbound and outbound excursion trains and are of sufficient size to show three month's selling dates; two black boards for posting emergency information, and two clocks, so located as to be visible to attendants from any point in the room. Each of the 15 attendants' desks is equipped with a compartment rack containing the "Official Guide," while each attendant's position has a cabinet containing railroad and Pullman fares of various classes, information as to limits and restrictions on different classes of rates, and miscellaneous data on subjects compiled from various tariffs and circulars. Timetable units for the Pennsylvania and Long Island contain over 20 separate timetables, so arranged as to avoid unfolding and folding when used, on which each train, other



New Pennsy Information Bureau Is Staffed by 30 Attendants

than daily runs, is marked by color signals to forestall misquoting. In addition there are provided compartments for cataloguing foreign line timetables and other literature for ready reference.

The new telephone equipment is planned to make possible constant contact with the inquirer. The switchboards in the general telephone exchange room of the terminal are so equipped that, when an outside information call is received, the operator switches the call directly to the bureau, where a special telephone monitor at the chief desk relays it automatically to the desk of an unoccupied attendant. Should all of the staff be engaged, the telephone operator requests the inquirer to wait and switches his call to a "holding cord," informing the caller every 30 seconds as to the situation in the bureau. Electric lamps indicate instantly the location of an open information desk, whereupon the delayed call is relayed by a "line cord" to the desired employee.

Freight Claim Division to Meet at Toronto

The annual session of the Freight Claim Division of the Association of American Railroads will be held at the Royal York Hotel, Toronto, Ont., on June 15-17. The program is as follows:

Morning Meeting—June 15

Address by Chairman W. C. Johnson.
Approval of proceedings of 1936 annual session.
Report of General Committee.

Afternoon Meeting

Report of general committee on Principles and Practices.
Balloting for Appeal Committee.
Report of general committee on Principles and Practices (continued).
Report of secretary.
Balloting for Arbitration Committees.

Morning Meeting—June 16

Address by Edward H. Bunnell, vice-president of the Finance, Accounting, Taxation and Valuation Department of the Association of American Railroads.
Report of committee on the Prevention of Loss and Damage.
Prevention discussions.

Afternoon Meeting

Prevention discussions (continued).
Action on the report of the committee on Prevention of Loss and Damage.

Morning Meeting—June 17

Report of committee on Rules of Order.
Report of committee on Freight Claim Rules.

Afternoon Meeting

Report of committee on Freight Claim Rules (continued).
Closing business.

Smoke Prevention Convention Cites Railroad Aid

At the 1937 convention of the National Smoke Prevention Association in New York last week it was brought out in various discussions that the railroads entering large cities have reduced to a minimum that fraction of total air pollution attributable to locomotives. At the sessions reserved as "Hudson County (N. J.) Day," J. L. Hodges of the Department of Smoke Regulation, Hudson County, cited statistics revealing that the trunk line railroads terminating on the New Jersey shore opposite New York City have reduced locomotive smoke from 23.5 per cent of the total pollution in 1931 to 1.24 per cent in 1937, as recorded through the facilities of the Hudson County Smoke Prevention Association. These figures compare favorably with the

results of similar tests made at Stevens Institute, Hoboken, N. J.

Other railroaders participating in the sessions were: G. H. Massy, master mechanic of the Central of New Jersey, who outlined results of efforts by New Jersey roads to eliminate excessive air pollution; E. E. Ramey, fuel engineer of the Baltimore & Ohio, whose subject was "Smoke Prevention Practices on Railroad Locomotives;" and C. B. Keiser, assistant to the general superintendent of motive power, New York zone of the Pennsylvania.

To Press for Transport Regulation in Canada

Reiterating his belief in equal regulation of all forms of transport, Hon. C. D. Howe, Dominion Minister of Transport, told the Canadian Transit Association in Montreal last week that he would probably introduce at the next session of parliament the bill to regulate transportation which was killed in the Senate at the last session.

"Almost every other country that has a large transportation problem has applied some form of control, either federal or state, to all forms of its transportation," said Mr. Howe. "This bill had wide public hearings and the weight of evidence, it seemed to me, was rather in favor of the bill although sections of it were strongly attacked.

"I still believe that Canada cannot neglect to take steps for the universal regulation of transportation, and I am satisfied that it is in the interests of the industry itself. I find that a great many people prominent in the transportation industry in various forms agree with me," he added.

"I don't see why we should not follow the example of England by permitting contracts on certain movements of goods provided they are closely supervised and no discrimination is allowed as between one shipper and another. I am having an examination made of contracts of that type as they are worked out in England as between the motor carrier and the rail carrier and I hope to have some light on that subject shortly."

Brotherhoods Oppose Regulation in Black-Connery Bill

Opposition to the Black-Connery bill fixing minimum wages and maximum hours was expressed by the railway brotherhoods when the Railway Labor Executives Association, meeting at Chicago on June 7, adopted a recommendation that the bill be amended to exclude railway labor. As a result the association will appear before the Black-Connery Committee and introduce an amendment that will exclude all employees governed by Section I of the Railway Labor Act.

Action taken by the brotherhoods was based upon the belief that, while the bill may be beneficial to some unorganized industrial labor, certain provisions in it will not result to the benefit of well organized groups such as the railway brotherhoods. One of the major objections was that the bill places too much power in the hands of five political appointees, two of whom could constitute a quorum and regulate the

wages and hours of millions of workers according to their judgment or discretion.

In commenting upon the action, George M. Harrison, president of the association, said, "Our industry is highly organized. Collective bargaining is almost universal and we believe wages should be fixed by collective bargaining wherever industry is organized and not by government fiat as they would be under the Black-Connery bill. There are other objections to the bill. It legalizes the hiring of strike breakers and other strike breaking acts in public service industries, a classification which includes the railroads. We are naturally opposed to that."

Grain Rates in Central Territory

Complaints of grain interests in Missouri River markets and in the Minneapolis-Duluth area that through rates on grain and grain products to central territory were prejudicial to their respective regions have been found unjustified by Examiners Arthur R. Mackley and George J. Hall in a proposed report to the Interstate Commerce Commission. The other recommended findings are summarized as follows:

"Revision of proportional rates on grain and grain products from Chicago and related gateways to central territory, proposed by the carriers in that territory as components of through rates from Missouri River markets and Minneapolis-Duluth, found not justified.

"Proportional rates on grains other than wheat, on grain products other than flour, and on mill feeds and grain by-products from Missouri River markets and Minneapolis-Duluth, and related points, to central territory found unreasonable and unduly prejudicial to the extent they exceed the contemporaneous rates on wheat and flour between the same points."

A fourth section application filed by central carriers, was heard with the complaints. In this application, which the examiners would grant, the central carriers seek permanent fourth-section relief in connection with a proposed group adjustment so that indirect routes may operate through higher-rated groups to reach destinations in lower-rated groups.

Lehigh Valley Ends Group Relief as Costs Rise

Claiming that certain legislative and judicial fiats have increased expenses to the point where voluntary benefits formerly extended to employees must be terminated, the Lehigh Valley notified its employees on June 9 that it will discontinue contributions to the relief fund and group insurance plan, effective July 1. Participated in by about 9,000 employees, the insurance plan provides that, upon cessation of the group payments, employees may convert their policies by paying full premiums gaged to present age rates, but it is thought unlikely that the majority of participants will continue payments.

Pointing out that its treasury department made payments under the insurance plan amounting to \$175,000 for the year ended June 1, 1937, the Lehigh Valley

based its decision to cease contributions on the following factors: 1. Under the Social Security Act the company is obligated to pay \$440,000 in 1937 for unemployment insurance and \$615,000 in 1937 for pensions under the new Railroad Retirement Act, in addition to the burden of the existing company pension plan, which will total over \$100,000 from January 1, 1937, to June 30, 1937. 2. Under the full-crew law recently passed by the legislature of Pennsylvania, operating expenses in that state will increase enormously. 3. Recent decisions of the National Adjustment Board awarded a total of \$250,000 retroactive "pay" to employees operating Lehigh Valley trains from Pennsylvania Station, New York, to Sunnyside yards. 4. General increases are expected in state and federal property and income taxes.

Brotherhoods to Push Train Limit Bill

National legislative representatives of the four train service brotherhoods this week reiterated their determination to press at this session of Congress for passage of the train limit, which would restrict freight trains to 70 cars. The declaration came in a letter to Senator McCarran of Nevada, which was inserted in the Congressional Record of June 7.

The letter was signed by John T. Corbett, assistant grand chief and national legislative representative, Brotherhood of Locomotive Engineers; Arthur J. Lovell, vice-president and national legislative representative, Brotherhood of Locomotive Firemen and Enginemen; W. D. Johnson, vice-president and national legislative representative, Order of Railway Conductors; and J. A. Farquharson, national legislative representative, Brotherhood of Railway Trainmen. It read in part as follows:

"Reliable information has reached us that outsiders have caused to be circulated among Senators a rumor that the transportation brotherhoods are not solidly and sincerely supporting the train-limit bill (S. 69) introduced by Senator McCarran, of Nevada, which has been favorably reported out by the interstate commerce committee of the Senate and is now on the Senate calendar.

"The rumor is absolutely false. The brotherhoods we represent are wholeheartedly back of this legislation, and are most earnestly urging its early passage at this session of Congress."

The bill was passed over when reached on the Senate calendar the same day on which the letter was inserted into the record. It went over at the request of Senator Robinson of Arkansas who stated that he was acting in accordance with the wish of Senator McCarran, who was not present.

Freight Car Loading

Revenue freight car loading for the week ended May 29 totaled 794,855 cars, an increase of 15,579 cars or two per cent above the preceding week, an increase of 148,043 cars or 22.9 per cent above the corresponding week in 1936 and an increase of 232,173 cars or 41.3 per cent above the corresponding week in 1935. All

commodity classifications except live stock showed increases over the preceding week, and all commodity classifications except grain and grain products showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading For Week Ended Saturday, May 29

| Districts | 1937 | 1936 | 1935 |
|--------------------------------------|----------------|----------------|----------------|
| Eastern | 171,683 | 144,641 | 127,412 |
| Allegheny | 167,301 | 133,765 | 114,145 |
| Poconantas | 52,238 | 46,771 | 42,539 |
| Southern | 106,429 | 92,095 | 83,060 |
| Northwestern | 132,934 | 99,091 | 78,510 |
| Central Western | 107,138 | 85,208 | 73,117 |
| Southwestern | 57,132 | 45,241 | 43,899 |
| Total Western Districts | 297,204 | 229,540 | 195,526 |
| Total All Roads | 794,855 | 646,812 | 562,682 |
| Commodities | | | |
| Grain and Grain Products | 27,653 | 29,721 | 23,255 |
| Live Stock | 12,598 | 10,343 | 11,104 |
| Coal | 123,002 | 114,022 | 116,607 |
| Coke | 10,791 | 9,078 | 6,162 |
| Forest Products | 42,675 | 31,155 | 24,648 |
| Ore | 77,174 | 44,655 | 30,061 |
| Merchandise | | | |
| L.C.L. | 171,112 | 144,988 | 137,990 |
| Miscellaneous ... | 329,850 | 262,850 | 212,855 |
| May 29 | 794,855 | 646,812 | 562,682 |
| May 22 | 779,276 | 683,590 | 598,396 |
| May 15 | 773,669 | 681,408 | 582,950 |
| May 8 | 767,481 | 668,866 | 575,020 |
| May 1 | 782,423 | 670,888 | 568,927 |

Cumulative Total,
22 Weeks15,951,584 13,797,052 12,694,994

In Canada.—Car loadings for the week ended May 29 totaled 44,240, as against 50,219 for the previous week and 44,004 for the corresponding week of 1936, according to the Dominion Bureau of Statistics.

| Total for Canada: | Total Cars Loaded | Total Cars Rec'd from Connections |
|--------------------|-------------------|-----------------------------------|
| May 29, 1937 | 44,240 | 27,405 |
| May 22, 1937 | 50,219 | 28,379 |
| May 15, 1937 | 46,902 | 28,665 |
| May 23, 1936 | 44,004 | 24,352 |

| Cumulative Totals for Canada: | | |
|-------------------------------|---------|---------|
| May 29, 1937 | 993,982 | 600,970 |
| May 23, 1936 | 901,934 | 497,573 |
| May 25, 1935 | 891,577 | 475,635 |

British Roads Seek Rate Increase from Railway Board

On June 14 the Railway Rates Tribunal of Great Britain, a body set up under the provision of the Railways Act of 1921 having jurisdiction over rail rates, will commence hearings on "standard and exceptional charges" of the British lines. Pointing to deficiencies in revenues for 1936, the general revival of trade and the increased cost of railway supplies, the railroad companies together have filed requests for a general increase in rates amounting to approximately five per cent.

Specifically, the roads ask that the general increase in freight rates be spread as follows: On all existing charges not exceeding 2 shillings, 5 pence, an increase of 1 penny; on charges over 2 shillings, 5 pence, but not exceeding 4 shillings, 1 penny, an increase of 2 pence; on charges of over 4 shillings 1 penny but not exceeding 5 shillings, 10 pence, an increase of 3 pence; and thereafter advancing by 1 penny for each additional shilling, 8 pence, in the existing rate.

In passenger fare schedules they request that the following sliding scale of

increases be effected: On fares up to 11½ pence, an increase of ½ penny; from 1 shilling to 2 shillings, 5 pence, an increase of 1 penny; from 2 shillings, 6 pence, to 4 shillings, 1 penny, an increase of 2 pence; from 4 shillings, 2 pence, to 5 shillings, 10 pence, an increase of 3 pence; and thereafter advancing by 1 penny for each additional 1 shilling, 8 pence, in the existing fare schedule.

Since 1928 the annual net revenues of the British roads have been considerably below the figures established as standard by the Tribunal, but at each rate hearing up to the present, the companies were of the opinion that an increase in rates would accentuate the traffic depression and fail to bring the desired increase in earnings and therefore requested no increases. Last year revenues of the combined railways fell short of the standard figure by £15,583,018 (\$76,980,108.92).

Urge Report on Pettengill Bill

A letter urging that efforts be made to force the Pettengill Bill from the Senate Interstate Commerce Committee, where it lies dormant, has been sent to Senators James Hamilton Lewis and William H. Dieterich of Illinois by the Illinois Manufacturers' Association. The letter, commenting upon this bill, which was passed by the house by a vote of 268 to 120, says in part:

"Illinois manufacturers and other shippers are apprehensive that this measure, which is so important to the middle-west, will expire in committee, as it did last year, unless determined efforts are made to revive it. Our information is that 20 members of the Senate Interstate Commerce Committee favor this proposed legislation, but other strong interests are determined that it shall not be reported to the Senate for a vote.

"The Illinois Manufacturers' Association favors the Pettengill Bill as in the interest of shippers and their customers, for its passage will enable railroads to handle transcontinental freight business on a fair and equitable basis. The restrictive fourth section of the Interstate Commerce Act does not permit the establishment of competitive railroad rates to meet waterway competition and as a result manufacturers and farmers are seriously handicapped.

"Such companies as the Inland Steel Company with plants at Chicago Heights and Indiana Harbor, which prior to the construction of the Panama Canal did a large business in the western states, have abandoned all efforts to do business in the west, having withdrawn their California agents several years ago. The Crane Company, manufacturers of plumbing supplies, was forced by the Panama Canal competition to establish a plant in the east. Similar action was taken by the Western Cartridge Company, East Alton, manufacturers of ammunition, which was compelled to establish a plant at West Haven, Conn. The Sparks Milling Company, with mills at Alton and Terre Haute, announced several months ago that stockholders had voted to dissolve the company and liquidate its assets. It was a company that start-

ed before the Civil War and which moved to Alton in 1869. In announcing the purpose of the company to give up its business, the directors said, 'The Panama Canal has been an important factor in making great changes in former trade conditions. Much of the surplus wheat raised in Illinois was formerly milled into flour for shipment to southern and eastern states. This business is now largely replaced by shipments of wheat from Washington and Oregon through the Panama Canal to Mobile, Jacksonville, Baltimore and the New England states, from which points flour is delivered by truck to interior markets at very low prices.'

"It is estimated that approximately five thousands industries in Illinois and other mid-western states have been seriously affected by the inability of the rail carriers to meet the competitive and preferential rates afforded by the Panama Canal.

"We trust you will use your best efforts to prevent the measure from 'dying in committee' as it did last year."

British Group Reports on Control of Highway Carriers

The report of the committee on regulation of wages and conditions of service in the road freight transport industry of the National Joint Conciliation Board of Great Britain, recently published, recommends that all matters affecting wages, hours, and working conditions of men employed on road vehicles, subject to license A (vehicles for hire) and license B (common carriers), be subject to decisions of proposed Central Board and local or area boards, as summarized in the Railway Review (London). It is recommended that these regulations be made standard by the Central Board, and after local public hearings are held, be instituted as statutory orders.

It is further proposed that the Central Board consist of representatives from the national trucking organizations, the road transport labor unions, and independent citizens and that area boards be selected from employee and management groups by the Minister of Transport. The proposed legislation will probably not affect the standards already in effect for the employees of the railways' highway subsidiaries under the railway machinery of negotiation. For employees operating non-common-carrier vehicles under license C, separate regulations will be drawn up.

Banking Houses Hit by Truman

(Continued from page 988)

merce Committee decided to include three more roads in the group to be investigated. These were the New York Central, New York, New Haven & Hartford and the Virginian. When the investigation started the program included only the Van Sweringen system and a few other important systems, including the Chicago, Milwaukee, St. Paul & Pacific, the St. Louis-San Francisco and the Kansas City Southern. The committee is now considering the ad-

visability of delving into the finances of other lines than those included in the investigation. In announcing its decision to look into the financial conditions of these other roads, the committee stated that in addition to the financial operations of these lines, it would also investigate "related matters." It is understood that the committee will scrutinize the interests of certain well-known families in order to ascertain what part they play in the control of certain railroad systems.

A discussion of the policies of the Chicago Great Western management regarding depreciation and depreciation reserves occupied much of the time of the senate subcommittee investigating railroad finance when it resumed hearings on June 8. Senator Truman of Missouri was again presiding due to the absence of Senator Wheeler. Patrick H. Joyce, trustee of the road, and S. M. Golden, assistant to the trustees, were on the stand and were questioned at length by committee investigators as to their ideas on the subject of depreciation. Mr. Joyce testified that he felt that the present policy of simply charging off a certain specified sum each year for depreciation and not setting aside the same amount to be invested in securities against the time when new equipment must be purchased was wrong and that it would be much preferable to set up a depreciation reserve and actually put into that account the sum charged off in annual depreciation. He went on to say that the only trouble with this policy is that often in the case of railroads like his own, it was impossible to do this, as the rate structure did not yield enough revenue to allow the railroad to follow this policy. Often there were bills much more pressing which had to be paid with whatever cash was available in the treasury. Mr. Joyce told the committee that it was his opinion that the depreciation on freight cars should be 20 per cent and that on locomotives 40 per cent.

Considerable discussion centered around the practices of the former management in setting up a low rate of depreciation and the persistent attempts of the Interstate Commerce Commission to get them to raise the rate.

The committee investigators attempted to show that Mr. Joyce might have been influenced in turning more of his traffic over to the Van Sweringen lines in view of the fact that the Virginia Transportation Corporation, a wholly owned subsidiary of the Chesapeake & Ohio, had loaned Mr. Joyce and his associates, who constituted the Bremon Corporation, \$4,000,000 on a note. Mr. Joyce denied that this was so and said that he had always held the late Mr. Burnet, who was then president of the C. & O., in the highest esteem and would have turned his traffic over to his lines regardless of the loan. He also said that during the time that he has been with the Chicago Great Western he has never once been interfered with by Wall Street bankers.

Letters were introduced into the record which purported to show that Mr. Joyce and his board made a grave mistake in declaring dividends on the preferred stock in 1930 and 1931 and then having to borrow \$1,289,000 from the Reconstruction

Finance Corporation, the same amount as they had paid out in dividends.

Later in the session the committee introduced evidence which showed that the Alleghany Corporation had sold about 104,000 shares of Kansas City Southern common stock to the Chicago Great Western in 1931 at double the price that it was then selling at on the New York Stock Exchange. The committee charged that Mr. Joyce engineered the deal, but did not give the facts to the Great Western's board until after the transaction was practically complete. When asked whether or not he considered this a good deal, Mr. Joyce replied that he felt that it was. He characterized it as similar to taking candy away from a baby.

Testifying on June 9 Mr. Joyce told how L. F. Loree, then chairman of the Kansas City Southern, placed "hurdles" in the path of the Chicago Great Western as the latter attempted to consummate control of the K. C. S. through the stock-purchase arrangements with the Alleghany Corporation. Dividends on K. C. S. stock were discontinued "for a purpose," Mr. Joyce said, adding that Mr. Loree thus acted in order to "embarrass the situation." Further in this connection, Mr. Joyce said that while he himself may appear to have been "a tool" he was nevertheless at the time working out a plan which was in the best interests of the Great Western and the K. C. S. He insisted that he and his associates had exercised "good judgment" but explained that there were "many hurdles put in our way by a man who wanted to dominate the situation."

The witness denied that he had any ambition to head a combined K. C. S.-C. G. W. He was willing that such a post should go to C. E. Johnston, K. C. S. president; and he further insisted that the transaction wasn't "high finance." It was Mr. Joyce's view that if he had been a "high financier" he would now "be on a farm; or perhaps a United States Senator."

Questioned as to the manner in which the acquisition of the K. C. S. stock was financed, Mr. Joyce admitted that short term notes were used in order to avoid the necessity of seeking Interstate Commerce Commission authority for the transaction. The principal reason for this was to avoid delay. When it was brought out that the certificates of notation informing the I.C.C. of the acquisition were "submitted to Cleveland" before being filed with the regulatory body, Mr. Joyce explained that he thought "Alleghany ought to know what we were doing." When the witness stated that he had told Commissioner Eastman of the proposed consolidation in an informal conference, and that the commissioner had thought well of the proposal, Attorney Hilmer of the committee observed that no one questioned the logic of the consolidation—the question was the financial ability of the C. G. W. to swing the deal. Mr. Joyce agreed that "looking back" the move wasn't a good one, but he nevertheless justified it as a fight by Great Western for its life.

Following the June 9 sessions the hearings were adjourned and were not expected to resume for at least a week or more.

Supply Trade

The Westinghouse Electric & Manufacturing Company has opened Pittsburgh, Pa., executive, sales, and lamp division offices, at 306 Fourth avenue.

Steel and Tubes, Inc., Cleveland, Ohio, has moved its New York district sales offices, from 30 Rockefeller Plaza, to the Chrysler building, New York City; L. M. Hogan is district sales manager.

H. B. Spackman, formerly general sales manager of the Steel Products Division of the U. S. Gypsum Company, Chicago, has been appointed general sales manager of Lyon Metal Products, Incorporated, Aurora, Ill., and will have supervision of all sales activity, including advertising and sales promotion.

C. W. Gilmer, manager mechanical sales, at the Seattle, Wash., branch for the Mechanical Goods Division of United States Rubber Products, Inc., has been transferred to the New York office as belting sales engineer, operating under T. A. Bennet, manager belting sales; L. F. Koepp, salesman in the Seattle district, has been appointed manager mechanical sales, succeeding Mr. Gilmer at the Seattle branch.

J. J. Summersby, assistant vice-president of the Worthington Pump & Machinery Corporation, Harrison, N. J., has been appointed general sales manager of the corporation. This is an extension of Mr. Summersby's previous responsibilities, for a further concentration of direction of the corporation's general sales department. Mr. Summersby joined the corporation as a sales engineer immediately after his completion of post graduate work at Washington University in 1920, and he has been continuously in that service since that time as district sales manager, divisional sales manager and assistant general sales manager.

A. A. Helwig, president of the Peerless Equipment Company, Chicago, has resigned to become vice-president of the



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A. A. Helwig

Standard Railway Equipment Company, Chicago. He was born at Minneapolis, Minn., in 1892, and served his ap-

prenticeship in the mechanical department of the Minneapolis & St. Louis. Later he was employed in train service on this railroad, the Great Northern and the Chicago, Milwaukee, St. Paul & Pacific. In 1915, he was appointed general foreman of the Alton at Kansas City, Mo., and the following year was made traveling inspector in the mechanical department. In 1917, he entered the army as a second lieutenant and in 1920 resigned as a major after serving three years in France with the First Army Engineers. He returned to railroad service in that year as superintendent of the car department of the Kansas City Terminal Company at Kansas City, and in 1925 resigned to become southwestern sales manager of the Bradford Corporation, with headquarters at St. Louis, Mo. In 1930, he was elected vice-president at Chicago and in March, 1932, resigned to form the Peerless Equipment Company, of which he was elected president on January 1, 1936.

Construction

NEW YORK CENTRAL.—Contracts have been let as follows: To the Walsh Construction Company, Syracuse, N. Y., elimination of the grade crossing at Congress street, 1.84 mi. east of Schenectady, N. Y. station; to H. R. Beebe, Inc., Utica, N. Y., elimination of grade crossing of Oneida-Valley-State Bridge Highway, Verona, N. Y.; to the Bates & Rogers Construction Company, Staten Island, N. Y., elimination of North Main street (Co. Highway No. 1505) at Jordan, N. Y. Contracts for work in New York City were let as follows: To the Gallow-Kearns Construction Company, Bronx, N. Y., construction of a pedestrian underpass west of Riverside Drive and West 148th street; to the Roman Landscape Company, New York, landscaping work in Riverside Park between West 83rd and West 100th streets; to the Immick Company, Inc., Meriden, Conn., construction of paths and stepped ramps, walls along Riverside Drive at West 76 street; to Hoffman & Elias, Inc., New York, wiring and lighting facilities, Riverside Park between West 72nd and West 83rd streets; to the Elmhurst Contracting Co., Inc., Corona, N. Y., construction of sea wall cap between West 83rd and West 95th streets; to O'Brien Brothers, Inc., New York, construction of riprap wall in connection with City Structure No. 5, between West 107th and West 117th streets; to Bernard J. Hughes, Inc., New York, work required in connection with restoration and addition to warehouse, Eleventh avenue.

UNION PACIFIC.—In order to gain access to the new Los Angeles Union Station, this company is planning the construction of a bridge across the Los Angeles river, near Alhambra street. The structure will consist of a single-track through plate-girder bridge, with three spans, 106 ft., 116 ft., and 119 ft. in length. It will be skewed and will be carried on concrete piers and abutments.

Equipment and Supplies

LOCOMOTIVES

THE NEWFOUNDLAND is inquiring for one 2-8-2 type locomotive.

THE CANTON RAILROAD COMPANY has taken delivery of one 600-hp. Diesel-electric locomotive, weighing 100 tons, from the Electro-Motive Corporation.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered six 3600-hp., 4-6-6-4 a.c.-d.c. electric locomotives from the General Electric Company. In the *Railway Age* of April 24, this company was reported as considering the purchase of some electric locomotives.

FREIGHT CARS

THE UNION PACIFIC has placed orders with company shops for 2,788 freight cars, instead of 2,600, as reported in the *Railway Age* of May 15. Of these, 2,088 box cars will be constructed at the Omaha and Portland shops, while 700 auto box cars will be constructed at the Grand Island shops. In addition, orders will be placed with company shops, or outside builders, for 100 special box cars, but inquiries have not yet been issued.

PASSENGER CARS

THE CITY OF PHILADELPHIA, PA., DEPARTMENT OF CITY TRANSIT, has awarded the contract for the 50 new subway cars to the Pressed Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of May 1.

IRON AND STEEL

THE LOS ANGELES UNION STATION is inquiring for 1,100 tons of rails.

LONG ISLAND.—A contract has been let for 300 tons of structural steel, to the Bethlehem Steel Company, and for 150 tons of reinforcing steel to the Jones & Laughlin Steel Corp., for use at Glendale, Long Island, N. Y., where two grade crossings are being eliminated and a new bridge built. Tully & Di Napoli, Inc., Long Island City, N. Y., has the general contract.

NEW YORK CENTRAL.—A contract has been given to the American Bridge Company for 2,200 tons of steel, and a contract for 1,150 tons of steel to the Harris Structural Steel Company, to be used on the viaduct being built south of Dyckman street and at Dyckman street, on the West Side Improvements of this road in New York City. The P. T. Cox Contracting Company, New York, has the general contract for this work.

Financial

ALABAMA GREAT SOUTHERN.—Annual Report.—The 1936 annual report of this road shows net income, after interest and other charges, of \$1,489,122, as compared with net income of \$303,436 in 1935. Selected items from the income statement follow:

| | 1936 | 1935 | Increase or Decrease |
|--------------------------------|-------------|-------------|----------------------|
| Average mileage operated | 315.14 | 315.14 | ..... |
| RAILWAY OPERATING REVENUES | \$6,529,136 | \$5,259,594 | +\$1,269,542 |
| Maintenance of way | 966,177 | 977,798 | -11,621 |
| Maintenance of equipment | 1,436,610 | 1,222,240 | +214,370 |
| Transportation | 2,031,207 | 1,773,368 | +257,839 |
| TOTAL OPERATING EXPENSES | 4,814,549 | 4,326,835 | +487,714 |
| Operating ratio | 73.74 | 82.27 | -8.53 |
| NET REVENUE FROM OPERATIONS | 1,714,587 | 932,758 | +781,829 |
| Railway tax accruals | 538,176 | 333,390 | +204,786 |
| Hire of equipment | 128,721 | 28,187 | +100,534 |
| Joint facility rents | 141,888 | 141,633 | +255 |
| NET RAILWAY OPERATING INCOME | 905,801 | 429,546 | +476,255 |
| Non-operating income | 1,068,837 | 371,735 | +697,102 |
| GROSS INCOME | 1,974,638 | 801,282 | +1,173,356 |
| Rent for leased roads | 19,579 | 18,744 | +835 |
| TOTAL AVAILABLE INCOME | 1,934,336 | 758,178 | +1,176,158 |
| Interest on funded debt | 423,840 | 423,840 | ..... |
| BALANCE OF INCOME OVER CHARGES | \$1,489,121 | \$303,436 | +\$1,185,685 |

ATCHISON, TOPEKA & SANTA FE.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized this company to abandon a branch line extending from Las Vegas, N. Mex., to Montezuma College, 5.4 miles.

CHICAGO & NORTH WESTERN.—Reorganization.—Commissioner Meyer, chairman of Division 4, of the Interstate Commerce Commission, in a letter to all interested parties in this company's reorganization proceedings, has announced the intention of the commission to close the hearings at the next session, which is scheduled for September 14.

GEORGIA SOUTHERN & FLORIDA.—Annual Report.—The 1936 annual report of this company shows net deficit, after interest and other charges, of \$160,333, as compared with net deficit of \$203,315 in 1935. Selected items from the income statement follow:

| | 1936 | 1935 | Increase or Decrease |
|----------------------------|-------------|-------------|----------------------|
| Average mileage operated | 397.95 | 397.95 | ..... |
| RAILWAY OPERATING REVENUES | \$2,301,546 | \$1,937,658 | +\$363,888 |
| Maintenance of way | 377,667 | 350,474 | +27,193 |
| Maintenance of equipment | 497,997 | 397,946 | +100,051 |

| | | | |
|------------------------------------|-----------|-----------|-----------|
| Transportation | 970,992 | 858,394 | +112,598 |
| TOTAL OPERATING EXPENSES | 1,949,113 | 1,685,095 | +264,018 |
| Operating ratio | 84.69 | 86.97 | -2.28 |
| NET REVENUE FROM OPERATIONS | 352,433 | 252,563 | +99,870 |
| Railway tax accruals | 127,528 | 138,612 | -11,084 |
| Hire of equipment | 68,166 | 233 | +67,933 |
| Joint facility rents | 19,214 | 9,202 | +10,012 |
| NET RAILWAY OPERATING INCOME | 137,524 | 104,514 | +33,010 |
| Non-operating income | 8,047 | 8,523 | -476 |
| GROSS INCOME | 145,571 | 113,037 | +32,434 |
| Interest on funded debt | 293,525 | 293,625 | -100 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 305,905 | 316,353 | -10,448 |
| NET DEFICIT | \$160,333 | \$203,315 | -\$42,982 |

INDIANA HARBOR BELT.—Annual Report.—The 1936 annual report of this road shows net income, after interest and other charges, of \$1,611,288, as compared with net income of \$1,322,090 in 1935. Selected items from the income account follow:

| | 1936 | 1935 | Increase or Decrease |
|-------------------------------------|--------------|--------------|----------------------|
| Average mileage operated | 124.25 | 124.24 | .01 |
| RAILWAY OPERATING REVENUES | \$10,479,637 | \$8,522,014* | \$1,957,622 |
| TOTAL OPERATING EXPENSES | 6,352,897 | 5,373,144 | 979,752 |
| Operating ratio | 60.62 | 63.05 | 2.43 |
| NET REVENUE FROM OPERATIONS | 4,126,739 | 3,148,869 | 977,869 |
| Railway tax accruals | 1,048,607 | 514,063 | 534,543 |
| Railway operating income | 3,078,132 | 2,634,806 | 443,325 |
| Equipment rents—Net Dr. | 676,486 | 490,125* | 186,360 |
| Joint facility rents—Net Dr. | 320,515 | 333,117 | 12,602 |
| NET RAILWAY OPERATING INCOME | 2,081,130 | 1,811,563 | 269,567 |
| Non-operating income | 26,362 | 21,693 | 4,669 |
| GROSS INCOME | 2,107,493 | 1,833,256* | 274,236 |
| Rent for leased roads and equipment | 41,013 | 53,337* | 12,323 |
| Interest on funded debt | 405,520 | 409,770 | 4,250 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 496,205 | 511,165* | 14,960 |
| NET INCOME | \$1,611,288 | \$1,322,090 | \$289,197 |

* Restated for purposes of comparison.

MINNEAPOLIS, RED LAKE & MANITOBA.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Bemidji, Minn., to Redby, 32.25 miles, and to operate over the tracks of the Great Northern at Bemidji for 3.37 miles.

NEW YORK CENTRAL.—Securities.—The Interstate Commerce Commission, Division 4, has modified its order of April 7, so as to permit this company to use \$1,712,700 of the proceeds from the sale of \$41,097,000 of its 15 year secured 3¼ per cent

bonds to redeem its 10-year 6 per cent convertible bonds; \$31,221,594 of the proceeds for the purpose of redeeming certain outstanding bonds of its subsidiaries, and \$8,162,705 to be applied to the purchase or redemption of such other indebtedness as the company deems advisable.

NEW ORLEANS & NORTHEASTERN.—Annual Report.—The 1936 annual report of this road shows net income, after interest and other charges, of \$44,967, as compared with net deficit of \$178,474 in 1935. Selected items from the income statement follow:

| | 1936 | 1935 | Increase or Decrease |
|------------------------------------|-------------|-------------|----------------------|
| Average mileage operated | 204.05 | 204.05 | ..... |
| RAILWAY OPERATING REVENUES | \$2,780,119 | \$2,347,921 | +\$432,198 |
| Maintenance of way | 345,057 | 327,715 | +17,342 |
| Maintenance of equipment | 426,076 | 407,704 | +18,372 |
| Transportation | 867,587 | 793,648 | +73,939 |
| TOTAL OPERATING EXPENSES | 1,831,839 | 1,718,888 | +112,951 |
| Operating ratio | 65.89 | 73.21 | -7.32 |
| NET REVENUE FROM OPERATIONS | 948,279 | 629,033 | +319,246 |
| Railway tax accruals | 282,000 | 270,879 | +11,121 |
| Hire of equipment | 377,203 | 280,855 | +96,348 |
| Joint facility rents | 117,026 | 117,212 | -186 |
| NET RAILWAY OPERATING INCOME | 406,102 | 194,511 | +211,591 |
| Non-operating income | 25,849 | 27,181 | -1,332 |
| GROSS INCOME | 431,951 | 221,692 | +210,259 |
| Interest on funded debt | 392,325 | 392,325 | ..... |
| TOTAL DEDUCTIONS FROM GROSS INCOME | 386,984 | 400,166 | -13,182 |
| NET INCOME | \$44,967 | \$178,474* | -\$233,441 |

* Deficit.

PITTSBURGH & WEST VIRGINIA.—Securities.—This company has applied to the Interstate Commerce Commission for authority to pledge \$125,000 of its first mortgage 4½ per cent gold bonds, series D, as collateral security for a note.

WESTERN MARYLAND.—Abandonment.—The Interstate Commerce Commission, Division 4 has authorized this company to abandon a branch line extending from Charlton, Md., to Nettle Junction, W. Va., 2.869 miles. The commission has also authorized this company to abandon operation and the Williamsport, Nettle & Martinsburg to abandon its entire line from Snyder, W. Va., to Nettle, 67 miles.

Average Prices of Stocks and Bonds

| | June 8 | Last week | Last year |
|---|--------|-----------|-----------|
| Average price of 20 representative railway stocks.. | 55.18 | 54.45 | 47.11 |
| Average price of 20 representative railway bonds.. | 80.46 | 80.30 | 79.71 |

Dividends Declared

Detroit, Hillsdale & South Western. — \$2.00 semi-annually, payable July 6 to holders of record June 19.
St. Louis Rocky Mountain & Pacific.—25c; Preferred, \$1.25, quarterly, both payable June 30 to holders of record June 15.
Virginian.—\$2.00, payable June 25 to holders of record June 14; Preferred, \$1.50, quarterly, payable August 2 to holders of record July 17.

Railway Officers

EXECUTIVE

A. L. Hammell, general manager of the New England departments of the Railway Express Agency, with headquarters at Boston, Mass., has been promoted to vice-president in charge of operations of the Western departments with headquarters at San Francisco, Cal., to succeed **E. M. Whittle**, who has been transferred to the Central departments with headquarters at Chicago. He replaces **C. D. Summy**, who has retired. **H. C. Trombly**, superintendent at Boston, has been promoted to general manager of the New England department, with the same headquarters, to succeed Mr. Hammell.

Mr. Hammell began his career in 1909 with Wells Fargo & Company at San Francisco, Cal. He served with that company successively as shipping clerk in the foreign department, customs clerk, cashier and chief clerk of the foreign department.



A. L. Hammell

He was then transferred to the city division as commercial agent, later becoming supervisor of delivery service and then serving as inspector of wagon service. In 1915, when the Panama-Pacific International Exposition was held in San Francisco, Wells Fargo & Company handled many shipments to and from the exposition grounds and Mr. Hammell was appointed agent on the grounds. Subsequently Mr. Hammell served as route agent successively at Eugene and Portland, Ore., and early in 1917 he was appointed general agent at Salt Lake City, Utah. When the express companies were consolidated in 1918, Mr. Hammell was appointed assistant general agent at Denver, Colo., for the American Railway Express Company, and in April of the following year he became general agent at El Paso, Tex. He was recalled to San Francisco, in December, 1919, to serve as chief clerk to the vice-president and after serving in that position for nearly five years he was appointed acting superintendent at Great Falls, Mont., later becoming superintendent of the Montana division. Mr. Hammell was promoted to the position of su-

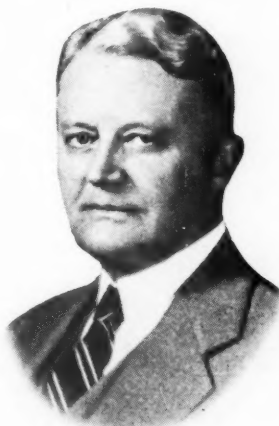
perintendent of transportation and traffic at San Francisco, in July, 1925, continuing in that capacity when the express company was taken over by the Railway Express Agency. On March 1, 1934, he was appointed general manager of the New England department at Boston, Mass., the position he held until his recent promotion.



E. M. Whittle

Mr. Whittle was born on July 12, 1870, at Chicago, and entered the service of the American Express Company (now the Railway Express Agency) in January, 1902, as chief clerk to the general agent at Chicago. He was appointed assistant general agent with headquarters at St. Louis, Mo., in January, 1904, and in the following year was advanced to general agent at Pittsburgh, Pa., being transferred to Portland, Ore., five years later. In January, 1911, he was further promoted to superintendent at Portland, and in January, 1915, was appointed manager at Salt Lake City, Utah. Three years later he was advanced to general manager at Seattle, Wash., being transferred to Los Angeles, Cal., in April, 1934. He has been vice-president of the Western departments with headquarters at San Francisco since July, 1935.

Mr. Summy is retiring after 45 years of service with various express companies. He



H. C. Trombly

was born on May 28, 1867, at Perry, N. Y., and first entered express service with the American Express Company on January 17, 1892, as an agent in Minnesota. On September 12, 1893, after serving in

various clerical capacities at St. Paul, he was sent to Dallas, Tex., as chief clerk to the superintendent. On December 1, 1894, he was promoted to route agent at Dallas, later being transferred to St. Louis, Mo. On June 1, 1901, Mr. Summy was appointed chief route agent at Memphis, being transferred to St. Louis later in the same year. In the following year he was appointed assistant superintendent at Dallas, holding this position until January 1, 1907, when he was sent to Chicago as assistant to the general manager. On May 17, 1908, he was sent to Omaha, Neb., as assistant to the general superintendent, and on February 1, 1910, he was promoted to superintendent at the same point. In the following year he was sent to St. Louis as manager, and on February 24, 1918, he was appointed acting general manager. On July 1, 1918, when the various express companies were consolidated to form the American Railway Express Company, Mr. Summy was appointed vice-president at St. Louis, continuing to hold this position when the Railway Express Agency was formed in 1929. He has served as vice-president of the Central departments at Chicago since September 30, 1932.

Mr. Trombly has spent all of his career



C. D. Summy

of over 40 years in the New England section, the larger part of that period in Boston. After about 13 years as joint railroad and express agent at North Chelmsford, Mass., he went to Boston in October, 1906, as claim clerk in the superintendent's office in that city. Among the successive positions he held were special inspector for the vice-president, claim investigator, special representative to the general manager and supervisor of claims. Later he served for two years as chief clerk to general manager. Mr. Trombly was appointed superintendent of the Massachusetts-Northern New England division in April, 1920, and had held that position for 16 years when placed in charge of the Boston division last July.

FINANCIAL, LEGAL AND ACCOUNTING

B. H. Beazley, general joint facility accountant of the Nashville, Chattanooga & St. Louis, has been appointed assistant auditor of receipts, effective June 1, with

headquarters as before at Nashville, Tenn., to succeed **W. P. Kerrigan**, deceased.

L. B. da Ponte, western counsel of the Northern Pacific with headquarters at Seattle, Wash., has been promoted to general counsel with headquarters at St. Paul, Minn., to succeed **D. F. Lyons**, who has resigned because of ill health.

OPERATING

L. F. Tadlock has been appointed trainmaster on the Southern Pacific Lines in Texas and Louisiana with headquarters at Houston, Tex., to succeed **C. S. Pond**, who has resigned.

W. R. Gillam, district engineer of the Southern lines of the Illinois Central, with headquarters at New Orleans, La., has been appointed superintendent of the Iowa division with headquarters at Waterloo, Iowa, to succeed **Walter S. Williams**, deceased.

Norman J. Thomson, commissioner in the industrial department of the Canadian National, has been appointed chief commissioner of industries, with headquarters as before at Montreal, Que. **C. G. Houghton**, assistant to general right of way agent at Montreal, has been appointed acting commissioner of industries, eastern territory, central region, at Montreal.

C. K. Scott, trainmaster on the Erie at Youngstown, Ohio, has been promoted to superintendent of the Marion division with headquarters at Huntington, Ind., to succeed **W. M. Sporleder**, who has been assigned to other duties. **F. X. Garland**, trainmaster of the New York division, has been transferred to Buffalo, N. Y., to succeed **A. W. Baker**, who has been transferred to Youngstown to replace Mr. Scott. **H. H. Clark**, inspector of operation at Cleveland, Ohio, has been promoted to trainmaster on the New York division, to succeed Mr. Garland.

C. E. McCarty, superintendent of the Kansas City Terminal division of the Kansas City Southern at Kansas City, Mo., has been appointed also superintendent of the Northern division with headquarters at Pittsburg, Kan., to succeed **O. Cornelisen**, who has retired, effective June 1, after 27 years' service with this company. **J. T. McCorkle**, general yardmaster of the Kansas City Terminal division, has been appointed to the newly-created position of assistant superintendent of the same division and the position of general yardmaster has been abolished. **William Weir** has been appointed trainmaster at Heavener, Okla., to succeed **M. A. Eddy**, who has been assigned to other duties.

H. A. Hanson, superintendent of the southern New England division of the Railway Express Agency, with headquarters at Providence, R. I., has been transferred in the same capacity to the Boston division, succeeding **H. C. Trombly**, promoted. **C. J. Leary**, superintendent of the office division, New York City department, has been transferred in the same capacity to Providence. **E. P. Prendergast**, superintendent of the terminal division at

New York, has been transferred in the same capacity to the office division in which the air express division in the city is included. **P. C. McGuinness**, agent at the Pennsylvania Express Terminal, Long Island City, N. Y., has been promoted to terminal superintendent in the New York City department.

S. O. Martin, superintendent of the eastern division, Canadian National Express, with headquarters at Montreal, Que., has been appointed general superintendent of the central district, Canadian National Express, with headquarters at Toronto, Ont., succeeding **W. E. Norman**, who has retired on pension after 50 years of service. **R. H. Jones**, superintendent at Toronto, has been transferred in the same capacity to the eastern division at Montreal, succeeding Mr. Martin. **Charles Grasley** has been appointed superintendent of the southwestern Ontario division, with headquarters at Toronto, succeeding Mr. Jones. **B. W. Bailey**, traffic supervisor at Toronto, has been appointed general agent there.

Stinson Osgood Martin was born at Camden, Ont., on June 23, 1886, and joined the Canadian Northern Express as clerk at Montreal in 1909, and was appointed agent at Ottawa in 1914; traveling agent at Moncton, N. B., in 1921; general agent at St. John, N. B., in 1925; agent at Montreal, in 1925; agent foreign department at Montreal in 1928 and later the same year was appointed superintendent of the Montreal City division. He became superintendent of the eastern division at Montreal in 1932 and continued in that position until his present appointment.

Walter Edwin Norman was born at Picton, Ont., on May 26, 1871, and joined the Canadian Express Company as messenger in 1887. Since that time he served in various capacities until attaining the position of general superintendent, from which he has now retired.

TRAFFIC

F. J. McLaughlin has been appointed freight traffic agent of the Atlanta, Birmingham & Coast, with headquarters at New York.

F. A. Young, assistant general passenger agent of the Pere Marquette, has been appointed to the newly-created position of general passenger agent, effective June 1, with headquarters as before at Detroit, Mich. The position of assistant general passenger agent has been abolished.

H. L. Martin, New York agent of the Norfolk & Western, has been appointed general eastern freight agent, with headquarters at New York, succeeding **J. Harmon Wilson**, who has retired. **A. W. Huggard**, chief clerk in the general eastern freight agent's office, has been appointed New York agent, succeeding Mr. Martin.

C. W. Nelson, freight traffic representative for the Grand Trunk (Canadian National) with headquarters at San Francisco, Cal., has been promoted to general agent, freight department, at St. Paul, Minn., to succeed **A. R. Menning**, who

has been transferred to Omaha, Neb., where he replaces **G. W. Amey**. Mr. Amey has been transferred to Kansas City, Mo., to succeed **C. J. Piper**, who has been transferred to San Francisco, Cal., where he succeeds **R. Logan**, deceased.

Henry E. Poulterer, assistant freight traffic manager of the Western Pacific, has been promoted to freight traffic manager, with headquarters as before at San Francisco, Cal., to succeed **John F. Bon**, deceased. Mr. Poulterer will also have jurisdiction as freight traffic manager over the Sacramento-Northern and the Tidewater Southern. **Malcolm W. Roper**, assistant general freight agent of the Western Pacific, has been promoted to assistant freight traffic manager in charge of rates and divisions, with headquarters at San Francisco, to succeed Mr. Poulterer.

L. A. Tibor, general freight agent, solicitation and service, of the Gulf, Mobile & Northern, has been appointed to the newly-created position of traffic manager, and **J. O. Gill**, general freight agent, rates and divisions, has been appointed to the newly-created position of freight traffic manager, both with headquarters as before at Mobile, Ala. **K. G. Gottschaldt**, assistant general freight agent at Mobile, has been appointed general freight agent, rates and divisions, to succeed Mr. Gill, and **E. W. Goslee**, assistant general freight agent, with headquarters also at Mobile, has been appointed general freight agent, solicitation and service, to succeed Mr. Tibor.

A. M. Reinhardt, general freight agent on the Coast lines of the Atchison, Topeka & Santa Fe, with headquarters at San Francisco, Cal., has been promoted to assistant freight traffic manager, with the same headquarters, to succeed **Paul P. Hastings**, whose appointment as freight traffic manager with headquarters at Chicago was reported in the *Railway Age* of May 1. **G. L. Goin**, assistant general freight agent at San Francisco, has been promoted to general freight agent with the same headquarters, to succeed Mr. Reinhardt. **Fred H. Rockwell**, chief clerk in the freight traffic department at San Francisco, has been promoted to assistant general freight agent with the same headquarters. A biographical sketch and photograph of Mr. Reinhardt were presented in the *Railway Age* of October 17, 1936, page 575.

ENGINEERING AND SIGNALING

J. F. Donovan, division engineer of the Lehigh Valley, with headquarters at Wilkes-Barre, Pa., has been promoted to division engineer at Buffalo, N. Y., succeeding **E. J. Cullen**, who has been promoted to chief engineer at Bethlehem, Pa. **C. P. Terhune**, assistant engineer at Easton, Pa., has been appointed division engineer at Wilkes-Barre, succeeding Mr. Donovan.

C. M. Chumley, division engineer of the Kentucky division of the Illinois Central, with headquarters at Paducah, Ky., has been promoted to district engineer of the Southern lines at New Orleans, La.,

Cost Reducers . .



Every modern locomotive is a distinct aid in reducing costs and increasing earnings.

Without exceeding present weight limitations of track and bridges, modern steam power is capable of a surprising increase in drawbar horsepower capacity.

Lima is prepared to work out with you locomotive designs that will give you improved economy of operation and maintenance.



LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

to succeed **W. R. Gillam**, who has been appointed superintendent, as noted elsewhere in these columns. **S. C. Jump**, supervisor of track with headquarters at Clinton, Ill., has been promoted to division engineer of the Kentucky division at Paducah to succeed Mr. Chumley.

F. B. Wiegand, signal engineer of the New York Central, with headquarters at Cleveland, Ohio, has had his jurisdiction extended over the Michigan Central, to succeed **J. C. Mock**, signal and electrical engineer of the latter company, with headquarters at Detroit, Mich., who retired on June 1. Effective the same date, **J. J. Corcoran**, assistant signal engineer of the New York Central, with headquarters at Albany, N. Y., was transferred to Cleveland to act as general assistant to Mr. Wiegand.

Mr. Mock was born on June 1, 1866, at Philipsburg, Pa., and was educated at Pennsylvania State college, graduating in 1890. He entered railway service in 1901 as signal engineer of the Michigan Central in charge of electrical equipment. In August, 1905, he was temporarily relieved of his duties as signal engineer to permit him to accept appointment as electrical engineer of the Detroit River Tunnel Company. In August, 1911, he returned to the Michigan Central as signal engineer and was later appointed also electrical engineer.

MECHANICAL

W. E. Harmison, master mechanic of the Erie at Secaucus, N. J., has been transferred in the same capacity to Hornell, N. Y., and **C. H. Norton**, master mechanic at Hornell, has been transferred in the same capacity to Secaucus.

J. M. Pierce, general master mechanic of the Kansas City Southern, with headquarters at Pittsburg, Kan., has been appointed master mechanic at Shreveport, La., with jurisdiction over the Southern and Port Arthur Terminal divisions, succeeding **L. C. Kirkhuff**, who has been assigned to other duties. The position of general master mechanic has been abolished. **R. Skidmore**, master mechanic in charge of the Pittsburg locomotive shop and roundhouse, has had his jurisdiction extended to include the Northern and Kansas City Terminal divisions. These changes became effective on June 1.

W. H. Sagstetter, assistant superintendent motive power of the Wabash, with headquarters at Decatur, Ill., has resigned to become general mechanical superintendent of the Denver & Rio Grande Western, with headquarters at Denver, Colo. The position of general mechanical superintendent of the D. & R. G. W. has remained unfilled since the middle of 1936, when **W. J. O'Neill** resigned to become superintendent motive power of the Western Pacific. During the interim **P. C. Withrow**, mechanical engineer of the D. & R. G. W., has served as acting general mechanical superintendent.

E. E. Sanford, master mechanic of the Buffalo and Montpelier divisions of the

Wabash, with headquarters at Montpelier, Ohio, has been promoted to assistant superintendent motive power, with headquarters at Decatur, Ill., to succeed **W. H. Sagstetter**, who has resigned to accept service with the Denver & Rio Grande Western, as noted elsewhere in these columns. **W. G. Rieck**, general roundhouse foreman at Decatur, has been promoted to master mechanic at Montpelier, to succeed Mr. Sanford. **A. Crawley**, day roundhouse foreman at Decatur, has been promoted to general roundhouse foreman at that point, to succeed Mr. Rieck.

OBITUARY

Jerome C. Snavelly, superintendent of the relief and pension department of the Norfolk & Western, with headquarters at Roanoke, Va., died on June 6 at his home in that city at the age of 63.

Karl J. Goebel, general car foreman of the Delaware, Lackawanna & Western, with headquarters at Elmira, N. Y., died on June 8 of a heart attack, at the age of 43.

George Dallas Dixon, former vice-president in charge of traffic of the Pennsylvania, died on June 4 at his home in Philadelphia, Pa., after an illness of several weeks. Mr. Dixon was in his 81st year, having been born in Philadelphia on March 28, 1857. He entered the service of the Pennsylvania on December 18, 1883, in the claim bureau of the general freight departments, serving later in the rate bureau. In 1894 he was appointed division freight agent at Baltimore, Md., and in 1899 became assistant general freight agent. In 1903 he was appointed freight traffic manager and in 1912 he was elected vice-president in charge of traffic of the Pennsylvania lines east of Pittsburgh. Upon the return of the railroads to their owners after the World War, Mr. Dixon was elected vice-president in charge of traffic of the entire Pennsylvania system on March 1, 1920. He retired from active service on April 1, 1927, as assistant to the president, a position to which he was appointed after 13 years of service as vice-president in charge of traffic. During his career, Mr. Dixon served as an officer and director in many subsidiaries and allied companies of the Pennsylvania system and was a director of the Lehigh & Hudson River.

Walter S. Williams, superintendent of the Iowa division of the Illinois Central with headquarters at Waterloo, Iowa, and formerly general superintendent of the Western lines of this company, died suddenly of heart disease on June 3 at Sioux Falls, S. D. Mr. Williams had been identified with the Illinois Central continuously for nearly 50 years. He was born on November 6, 1868, at Quincy, Ill., and first entered railway service with the Illinois Central in 1888 as a brakeman at Clinton, Ill. During the following sixteen years he served in this position and as a freight conductor and passenger conductor. At the end of this period he was promoted to trainmaster of the Springfield district with

headquarters at Clinton, which position he held until 1910, when he was further advanced to superintendent of the Springfield division with the same headquarters. Two years later Mr. Williams was transferred to the Minnesota division, with headquarters at Dubuque, Iowa, and in 1913 he was transferred to the St. Louis division, with headquarters at Carbondale, Ill. For several months in 1917 he served as superintendent of the Chicago Terminal division, then being promoted to general superintendent of the Western lines with headquarters at Waterloo, Iowa. On October 15, 1931, during the retrenchment period, Mr. Williams returned to the position of superintendent, with headquarters at Waterloo, where he remained until his death. Mr. Williams was active in the affairs of the American Association of Railroad Superintendents and served as president of this organization from 1915 to 1923.

Michael J. Collins, general purchasing agent of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died of heart disease on June 6 at his home at Chicago. Mr. Collins was 76 years of age and had been in railroad service for about 60 years, 50 years of which were spent with the Santa Fe. He was born

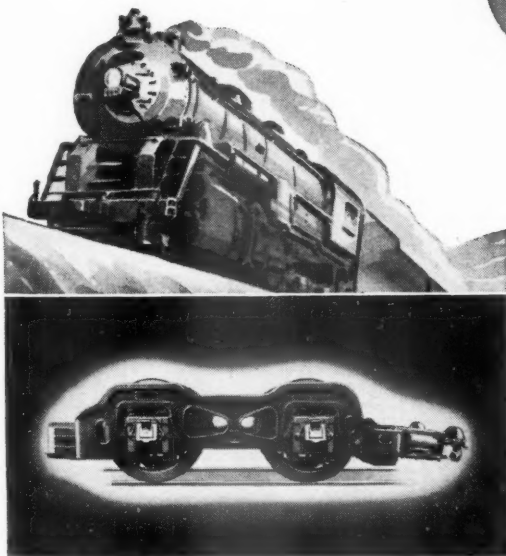
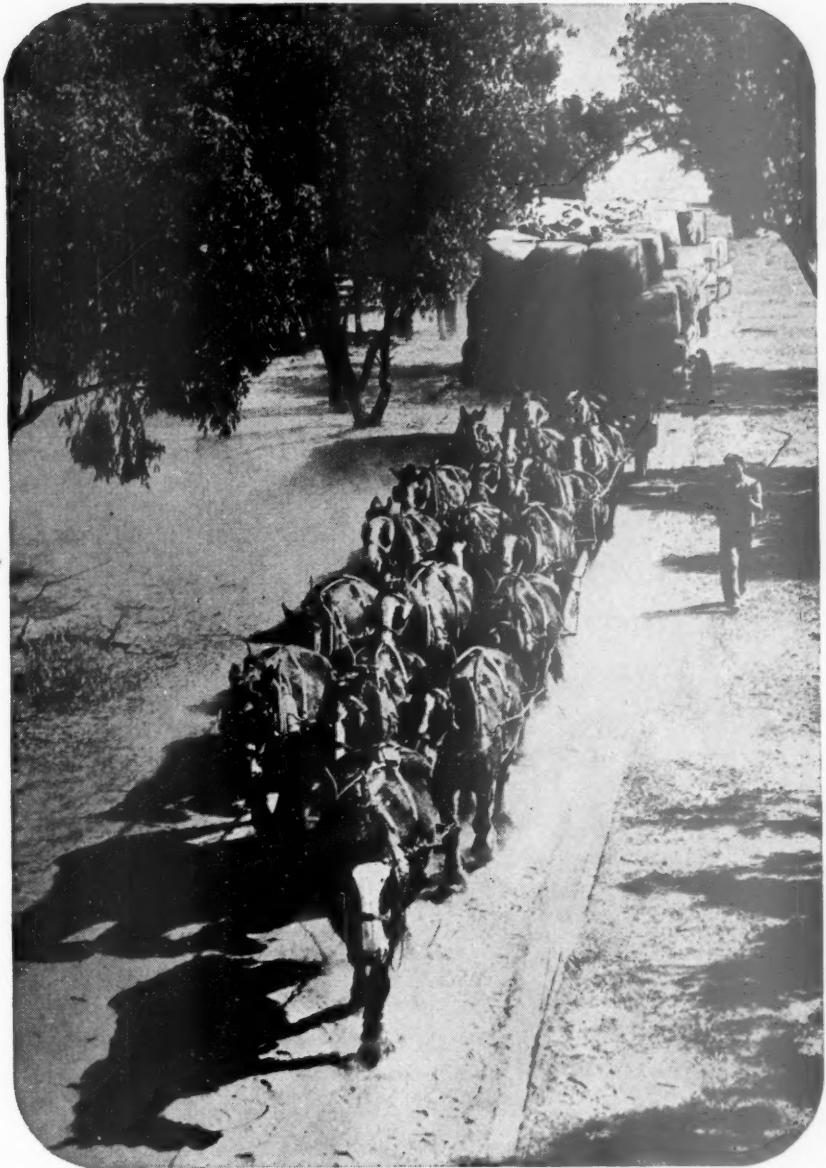


Michael J. Collins

at Chicago on March 18, 1861, and first entered railway service with the Michigan Central as a messenger boy, in 1877. In the following year he became a clerk in the local office at Chicago, and in 1880 was advanced to chief clerk in the superintendent's office and subsequently to trainmaster. In 1887 Mr. Collins severed his connection with the Michigan Central, to enter the service of the Santa Fe as stationer and general clerk. He was advanced to chief clerk in the purchasing department in 1893, and in 1901 was promoted to assistant general purchasing agent. He had been general purchasing agent since 1909. During the war he served as chairman of the regional purchasing committee of the western railroads under the United States Railroad Administration. For many years Mr. Collins had been active in civic affairs, being particularly interested in religious and educational matters. At one time he was president of the Chicago Board of Education.

POWER

"On Call"



In hauling this load of Australian wool, pulling power is needed to start it. They merely add horses until there is power enough, but the extra horses always go the whole route.

In hauling a capacity train, the locomotive can handle it comfortably except at starting and over the ruling grades. The Booster, "cut-in" when needed, utilizes adhesive weight of idle wheels to provide additional pulling power for starting, for rapid acceleration to road speeds and over grades. It cuts out when no longer required.



Franklin parts fit—in applying them there is no labor cost for fitting. They are built to original dimensions of carefully selected materials—they avoid road failures and excessive maintenance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK

CHICAGO

MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937

| Name of road | Av. mileage operated during period | Operating revenues | | | Maintenance of way and equipment | | | Operating expenses | | | Operating ratio | Net from railway operation | Net railway operating income | | |
|---|------------------------------------|--------------------|-----------|--------------------|----------------------------------|------------|------------|--------------------|---------------|------------|-----------------|----------------------------|------------------------------|--------------------|-----------------------|
| | | Freight | Passenger | Total (inc. misc.) | Way and structures | Equip-ment | Total | Traffic | Trans-portion | Total | | | Operating income | After depreciation | Before de-precia-tion |
| Akron, Canton & Youngstown..... | 171 | \$169,283 | \$18 | \$181,154 | \$26,759 | \$18,114 | \$44,873 | \$10,115 | \$54,307 | \$119,316 | 65.9 | \$1,838 | \$27,585 | \$36,137 | \$32,032 |
| Alton | 171 | 736,447 | 148 | 781,594 | 106,984 | 68,114 | 175,098 | 37,328 | 227,699 | 239,479 | 61.4 | 301,499 | 239,479 | 159,430 | 160,347 |
| Alton | 956 | 979,128 | 189,012 | 1,368,339 | 201,382 | 204,927 | 406,309 | 46,948 | 519,040 | 1,039,861 | 76.0 | 1,579,555 | 222,158 | 47,865 | 277,162 |
| Alton | 956 | 3,932,982 | 738,637 | 5,442,788 | 527,716 | 794,272 | 1,321,988 | 196,029 | 2,070,582 | 3,863,233 | 71.0 | 1,579,555 | 1,156,868 | 500,892 | 618,069 |
| Archison, Topeka & Santa Fe System..... | 13,561 | 11,066,285 | 1,326,033 | 13,518,248 | 2,282,950 | 3,176,774 | 5,459,724 | 428,713 | 5,051,220 | 11,403,495 | 84.4 | 2,114,753 | 909,441 | 908,597 | 1,843,471 |
| Atlanta & West Point..... | 13,437 | 42,628,610 | 5,375,511 | 52,382,872 | 6,678,994 | 12,416,853 | 19,095,847 | 1,228,053 | 19,813,899 | 42,580,295 | 81.3 | 9,802,577 | 4,854,419 | 4,747,127 | 8,488,201 |
| Atlanta & West Point..... | 93 | 106,758 | 23,795 | 130,553 | 24,022 | 35,492 | 59,514 | 9,184 | 68,698 | 141,039 | 91.7 | 12,847 | 3,443 | 8,485 | 71 |
| Atlanta & West Point..... | 93 | 426,100 | 100,703 | 526,803 | 81,301 | 136,412 | 217,713 | 34,463 | 245,056 | 543,192 | 86.8 | 82,947 | 45,896 | 9,222 | 25,520 |
| Western of Alabama..... | 133 | 110,130 | 23,391 | 150,967 | 19,001 | 37,162 | 56,163 | 8,247 | 51,343 | 125,984 | 83.5 | 24,983 | 13,224 | 17,662 | 6,964 |
| Atlanta, Birmingham & Coast..... | 639 | 401,441 | 99,484 | 572,566 | 83,859 | 144,886 | 228,745 | 31,019 | 212,955 | 513,505 | 89.7 | 59,061 | 11,499 | 20,519 | 5,292 |
| Atlanta, Birmingham & Coast..... | 639 | 288,522 | 22,604 | 345,740 | 55,030 | 57,168 | 112,198 | 24,024 | 133,205 | 295,741 | 85.5 | 49,999 | 28,234 | 2,218 | 1,203 |
| Atlanta, Birmingham & Coast..... | 639 | 1,108,832 | 116,515 | 1,356,007 | 202,751 | 221,897 | 424,648 | 94,908 | 504,353 | 1,127,956 | 83.2 | 228,051 | 141,910 | 56,633 | 7,682 |
| Atlantic Coast Line..... | 5,102 | 3,442,666 | 905,308 | 4,816,375 | 421,966 | 787,179 | 1,209,145 | 152,227 | 1,734,866 | 3,300,855 | 68.5 | 1,515,520 | 915,520 | 709,535 | 468,177 |
| Atlantic Coast Line..... | 5,102 | 1,348,138 | 4,237,158 | 19,677,222 | 1,657,381 | 3,106,292 | 4,763,673 | 592,894 | 6,883,114 | 13,131,848 | 66.7 | 6,545,374 | 4,170,374 | 3,444,717 | 2,052,001 |
| Atlantic Coast Line..... | 342 | 223,634 | 1,209 | 237,757 | 30,544 | 32,556 | 63,100 | 7,674 | 69,162 | 145,520 | 63.1 | 85,264 | 60,264 | 48,209 | 33,430 |
| Atlantic Coast Line..... | 342 | 855,660 | 4,372 | 882,597 | 116,875 | 125,828 | 242,703 | 27,768 | 280,543 | 571,529 | 64.8 | 311,068 | 216,568 | 188,337 | 145,474 |
| Baltimore & Ohio..... | 6,471 | 13,256,995 | 920,170 | 15,086,048 | 1,517,194 | 3,683,521 | 5,200,715 | 446,901 | 4,984,188 | 11,345,202 | 75.2 | 3,740,846 | 2,857,713 | 2,426,767 | 2,636,471 |
| Baltimore & Ohio..... | 6,471 | 51,633,197 | 3,399,789 | 58,342,169 | 5,260,655 | 13,296,551 | 18,557,206 | 1,601,037 | 20,158,243 | 43,039,088 | 73.8 | 15,303,081 | 11,054,333 | 9,488,721 | 7,163,399 |
| Baltimore & Ohio..... | 23 | 54,915 | 66,505 | 128,593 | 13,070 | 22,934 | 35,994 | 2,016 | 31,189 | 131,427 | 102.2 | 2,834 | 24,434 | 30,735 | 23,057 |
| Baltimore & Ohio..... | 23 | 227,236 | 272,073 | 526,647 | 50,844 | 92,069 | 142,913 | 7,351 | 329,991 | 529,737 | 100.6 | 3,090 | 89,490 | 119,414 | 89,742 |
| Bangor & Aroostook..... | 603 | 698,892 | 20,789 | 740,032 | 95,935 | 81,504 | 177,439 | 5,582 | 145,717 | 360,278 | 48.7 | 379,754 | 300,280 | 275,882 | 163,059 |
| Bangor & Aroostook..... | 603 | 2,552,321 | 102,170 | 2,736,712 | 348,240 | 379,285 | 727,525 | 22,118 | 624,892 | 1,484,330 | 54.2 | 1,252,352 | 970,031 | 895,104 | 756,415 |
| Bessmer & Lake Erie..... | 225 | 1,330,067 | 737 | 1,347,705 | 306,088 | 306,088 | 612,176 | 12,495 | 213,877 | 730,997 | 54.2 | 616,708 | 474,779 | 155,241 | 389,073 |
| Bessmer & Lake Erie..... | 225 | 3,880,713 | 3,368 | 3,942,731 | 502,931 | 1,213,956 | 1,716,887 | 47,619 | 769,300 | 2,695,713 | 68.4 | 1,247,018 | 867,793 | 1,165,680 | 306,182 |
| Boston & Maine..... | 1,959 | 3,085,459 | 548,874 | 4,166,476 | 491,049 | 644,546 | 1,135,595 | 69,596 | 1,531,779 | 2,926,568 | 70.2 | 1,239,908 | 919,739 | 675,319 | 7,546 |
| Boston & Maine..... | 1,959 | 11,713,502 | 2,348,046 | 16,243,046 | 1,834,340 | 2,474,391 | 4,308,731 | 259,770 | 6,070,479 | 11,399,209 | 70.1 | 4,849,155 | 3,633,061 | 2,776,110 | 3,310,531 |
| Burlington-Rock Island | 255 | 13,614 | 120,426 | 137,040 | 16,929 | 15,598 | 32,527 | 4,967 | 48,661 | 93,998 | 78.0 | 26,428 | 19,140 | 1,218 | 710 |
| Burlington-Rock Island | 255 | 348,353 | 53,880 | 429,416 | 61,597 | 62,260 | 123,857 | 20,164 | 191,206 | 366,777 | 85.4 | 62,639 | 32,732 | 34,844 | 102,665 |
| Cambria & Indiana..... | 37 | 93,229 | ..... | 93,229 | 6,334 | 41,672 | 48,006 | 416 | 8,144 | 63,035 | 67.60 | 30,214 | 5,239 | 78,227 | 95,172 |
| Canadian Pacific Lines in Maine..... | 37 | 476,576 | ..... | 476,576 | 22,056 | 163,655 | 185,711 | 1,571 | 51,055 | 263,557 | 55.26 | 213,410 | 54,666 | 350,467 | 418,509 |
| Canadian Pacific Lines in Maine..... | 233 | 202,011 | 14,180 | 216,191 | 27,136 | 55,152 | 82,288 | 9,028 | 81,326 | 183,657 | 79.6 | 36,878 | 36,817 | 4,105 | 16,254 |
| Canadian Pacific Lines in Maine..... | 233 | 1,026,100 | 55,242 | 1,130,034 | 77,767 | 235,117 | 312,884 | 36,137 | 373,024 | 755,034 | 66.8 | 375,001 | 335,735 | 245,541 | 57,523 |
| Canadian Pacific Lines in Vermont..... | 85 | 68,183 | 7,755 | 87,711 | 14,751 | 30,512 | 45,263 | 4,279 | 61,087 | 116,601 | 132.8 | 28,890 | 35,308 | 53,635 | 64,581 |
| Canadian Pacific Lines in Vermont..... | 85 | 314,038 | 36,881 | 396,047 | 48,656 | 117,720 | 169,552 | 16,952 | 250,202 | 457,652 | 115.5 | 61,605 | 87,893 | 164,893 | 164,893 |
| Central of Georgia..... | 1,926 | 1,263,694 | 111,362 | 1,547,641 | 208,974 | 288,604 | 497,578 | 56,113 | 601,081 | 1,241,177 | 80.2 | 306,464 | 218,541 | 203,321 | 269,032 |
| Central of Georgia..... | 1,926 | 4,844,818 | 498,597 | 6,018,951 | 750,187 | 1,140,413 | 1,891,600 | 220,318 | 2,350,851 | 4,812,202 | 80.0 | 1,206,749 | 841,855 | 678,454 | 224,253 |
| Central of New Jersey..... | 681 | 2,715,119 | 334,262 | 3,217,315 | 205,601 | 493,328 | 698,929 | 45,154 | 1,176,262 | 2,027,811 | 63.0 | 1,189,504 | 761,196 | 598,467 | 178,589 |
| Central of New Jersey..... | 681 | 9,109,282 | 1,376,294 | 11,504,694 | 749,877 | 1,963,031 | 2,712,908 | 181,728 | 4,501,717 | 7,833,919 | 70.3 | 3,316,775 | 1,728,069 | 1,102,300 | 496,116 |
| Central Vermont | 455 | 463,176 | 30,455 | 540,655 | 70,853 | 109,690 | 180,543 | 15,328 | 230,480 | 449,656 | 83.2 | 90,999 | 67,601 | 29,376 | 55,506 |
| Central Vermont | 455 | 1,907,136 | 153,177 | 2,241,149 | 227,389 | 431,594 | 658,983 | 59,655 | 1,047,361 | 1,860,406 | 83.0 | 380,743 | 282,991 | 129,061 | 53,261 |
| Chesapeake & Ohio..... | 3,106 | 9,303,811 | 298,907 | 10,030,234 | 1,046,330 | 1,966,512 | 3,012,842 | 196,738 | 2,383,420 | 5,395,379 | 59.2 | 4,094,855 | 2,738,417 | 2,736,107 | 3,055,285 |
| Chesapeake & Ohio..... | 3,106 | 40,204,999 | 1,003,528 | 42,655,895 | 4,549,358 | 7,599,975 | 12,149,333 | 776,385 | 9,910,624 | 24,272,712 | 56.9 | 18,380,183 | 12,958,467 | 13,322,877 | 14,664,880 |
| Chicago & Eastern Illinois..... | 930 | 1,383,703 | 36,804 | 1,420,507 | 288,810 | 258,902 | 547,712 | 59,702 | 504,042 | 1,034,484 | 80.7 | 248,184 | 158,184 | 16,765 | 58,535 |
| Chicago & Eastern Illinois..... | 930 | 4,580,763 | 471,354 | 5,691,059 | 581,930 | 905,612 | 1,487,542 | 234,916 | 2,116,050 | 4,116,447 | 72.3 | 1,574,612 | 1,214,612 | 636,855 | 336,044 |
| Chicago & Illinois Midland..... | 131 | 240,690 | 1,286 | 242,976 | 20,308 | 68,063 | 88,371 | 17,114 | 68,883 | 186,633 | 74.9 | 62,650 | 43,676 | 33,956 | 73,938 |
| Chicago & Illinois Midland..... | 131 | 1,351,467 | 5,055 | 1,385,400 | 93,396 | 268,061 | 361,457 | 71,508 | 343,882 | 853,189 | 61.6 | 532,221 | 414,208 | 374,296 | 307,284 |
| Chicago & North Western..... | 8,404 | 5,630,992 | 789,366 | 7,104,428 | 1,182,844 | 1,919,492 | 3,102,336 | 176,397 | 2,905,413 | 6,540,609 | 92.1 | 2,436,041 | 109,046 | 298,185 | 115,036 |
| Chicago & North Western..... | 8,404 | 21,060,046 | 3,337,231 | 27,256,323 | 3,474,674 | 7,339,841 | 11,814,515 | 698,999 | 11,881,820 | 24,820,282 | 91.1 | 2,436,041 | 324,563 | 1,069,507 | 1,324,675 |
| Chicago, Burlington & Quincy..... | 8,976 | 6,120,210 | 627,079 | 7,996,541 | 1,258,540 | 1,480,719 | 2,739,259 | 255,353 | 2,789,822 | 6,159,387 | 81.1 | 1,437,154 | 705,294 | 410,539 | 109,774 |
| Chicago, Burlington & Quincy..... | 8,976 | 23,875,361 | 2,615,684 | 26,491,045 | 3,323,346 | 5,971,732 | 9,295,078 | 966,913 | 11,865,409 | 23,679,281 | 74.6 | 8,051,308 | 5,142,546 | 3,740,138 | 3,102,016 |
| Chicago Great Western..... | 1,505 | 1,383,703 | 36,804 | 1,420,507 | 288,810 | 258,902 | 547,712 | 59,702 | 504,042 | 1,034,484 | 80.7 | 248,184 | 158,184 | 16,765 | 58,535 |
| Chicago Great Western..... | 1,505 | 5,562,550 | 177,312 | 6,107,490 | 953,881 | 1,022,586 | 1,976,467 | 235,739 | 2,413,752 | 4,845,309 | 79.3 | 1,262,181 | 880,419 | 104,000 | 136,197 |
| Chicago, Indianapolis & Louisville..... | 575 | 655,637 | 49,311 | 803,015 | 104,653 | 209,557 | 314,210 | 31,495 | 330,468 | 713,817 | 88.9 | 89,198 | 42,841 | 54,172 | 4,942 |
| Chicago, Indianapolis & Louisville..... | 575 | 2,963,265 | 204,152 | 3,561,655 | 347,453 | 827,168 | 1,174,621 | 118,618 | 1,430,060 | 2,871,291 | 83.6 | 690,363 | 494,524 | 77,975 | 143,917 |
| Chicago, Milw., St. Paul & Pacific..... | 11,115 | 7,041,704 | 1,895,905 | 8,937,609 | 1,495,244 | 1,805,905 | 3,301,149 | 206,656 | 3,295,584 | 7,141,456 | 80.1 | 1,403,031 | 681,031 | 340,447 | 695,999 |
| Chicago, Milw., St. Paul & Pacific..... | 11,115 | 28,366,614 | 2,355,200 | 30,029,990 | 4,166,384 | 7,052,591 | 11,222,275 | 849,051 | 13,762,571 | 27,267,269 | 80.1 | 6,762,721 | 3,865,366 | 2,339,701 | 2,116,654 |

Continued on next left-hand page

NO. 18 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



STONE ARCH BRIDGE NEAR CRESSON, PA.

A few yards from the monument erected to the old Allegheny Portage Railroad stands the "Skew Arch" bridge built about 1832 to carry the old highway over what was then inclined plane No. 6 of the Portage. The arch is a splendid specimen of dry-stone masonry, with the horizontal axis making other than right angles with its abutments.

The Portage Railroad, opened in 1836, crossed the Alleghenies on 10 inclined planes and levels. It was operated by stationary engines and cables and con-

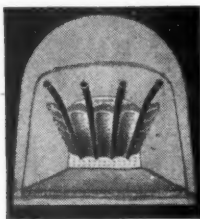
nected Philadelphia and Pittsburgh prior to the building of the Pennsylvania Railroad.

* * *

The Security Sectional Arch, also a pioneer, was among the first efforts to improve economy and increase the capacity of the steam locomotive. While the fundamental design is unchanged, it has been continuously developed with the progress in locomotive design and is today an essential factor in the operation of modern steam motive power.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
*Locomotive Combustion
Specialists* » » »

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937—CONTINUED

| Name of road | Av. mileage operated during period | Operating revenues | | | Operating expenses | | | Operating ratio | Net from railway operation | Net railway operating income | |
|---------------------------------------|------------------------------------|--------------------|-----------|--------------------|--------------------|--------------------------|-------------|-----------------|----------------------------|------------------------------|-------------------------|
| | | Freight | Passenger | Total (inc. misc.) | Way and structures | Maintenance of equipment | Traffic | | | Operating income | After depreciation—1937 |
| Chicago, Rock Island & Pacific..... | 7,516 | \$5,015,643 | \$586,764 | \$5,602,407 | \$1,034,420 | \$1,368,115 | \$2,226,590 | 89.9 | \$617,176 | \$106,372 | —\$197,614 |
| Chicago, Rock Island & Gulf..... | 7,528 | 19,589,356 | 2,535,908 | 24,196,901 | 3,117,461 | 5,000,876 | 879,432 | 86.7 | 3,208,772 | 1,153,193 | 17,989 |
| Chicago, Rock Island & Gulf..... | 626 | 287,721 | 31,327 | 417,253 | 69,841 | 36,165 | 18,587 | 69.0 | 129,388 | 103,438 | 37,655 |
| Chicago, Rock Island & Gulf..... | 626 | 1,021,170 | 126,751 | 1,495,281 | 211,775 | 152,919 | 72,071 | 71.9 | 420,911 | 319,590 | 58,493 |
| Chicago, St. Paul, Minneap. & Om..... | 1,648 | 1,127,072 | 118,853 | 1,340,486 | 118,603 | 294,138 | 35,538 | 87.0 | 174,219 | 58,015 | —42,703 |
| Clinchfield Railroad..... | 1,648 | 4,403,454 | 5,272,828 | 9,676,282 | 443,683 | 1,140,145 | 1,42,647 | 93.3 | 351,598 | —103,506 | —52,197 |
| Clinchfield Railroad..... | 309 | 591,533 | 4,332 | 602,832 | 46,274 | 124,521 | 18,598 | 51.7 | 291,373 | 244,309 | 262,830 |
| Clinchfield Railroad..... | 309 | 2,435,259 | 16,181 | 2,476,133 | 165,370 | 468,085 | 75,224 | 49.8 | 1,243,901 | 1,055,259 | 1,182,033 |
| Colorado & Southern..... | 956 | 540,059 | 27,755 | 620,140 | 61,003 | 120,329 | 13,599 | 76.6 | 145,088 | 77,492 | 61,341 |
| Fort Worth & Denver City..... | 956 | 2,110,166 | 118,736 | 2,454,340 | 206,563 | 498,473 | 53,967 | 77.9 | 541,338 | 271,472 | 180,897 |
| Fort Worth & Denver City..... | 902 | 505,334 | 531,425 | 1,036,759 | 50,375 | 99,757 | 16,598 | 69.6 | 161,493 | 124,186 | 89,888 |
| Fort Worth & Denver City..... | 902 | 1,852,380 | 181,811 | 2,000,491 | 178,268 | 357,941 | 68,058 | 70.6 | 587,704 | 439,057 | 311,174 |
| Columbus & Greenville..... | 167 | 97,124 | 7,194 | 110,678 | 27,249 | 18,835 | 4,300 | 88.6 | 12,595 | 2,757 | —1,422 |
| Delaware & Hudson..... | 167 | 384,185 | 31,594 | 440,441 | 88,720 | 63,393 | 16,196 | 81.9 | 79,651 | 50,604 | 37,822 |
| Delaware & Hudson..... | 830 | 2,355,306 | 76,438 | 2,529,558 | 240,587 | 505,947 | 45,072 | 70.3 | 752,401 | 591,486 | 578,724 |
| Delaware & Hudson..... | 830 | 8,315,963 | 369,193 | 9,017,394 | 921,858 | 1,956,464 | 185,017 | 75.7 | 2,191,282 | 1,551,671 | 1,529,241 |
| Delaware, Lackawanna & Western..... | 984 | 3,959,252 | 557,144 | 5,013,822 | 341,709 | 749,237 | 118,392 | 67.6 | 1,622,533 | 1,122,533 | 1,092,853 |
| Delaware, Lackawanna & Western..... | 984 | 1,316,822 | 2,234,850 | 17,440,746 | 1,072,097 | 3,115,011 | 457,711 | 75.5 | 4,367,579 | 2,652,379 | 2,618,412 |
| Denver & Rio Grande Western..... | 2,576 | 7,345,864 | 141,425 | 1,979,506 | 536,593 | 638,033 | 64,158 | 102.5 | —50,080 | —263,463 | —302,153 |
| Denver & Rio Grande Western..... | 2,576 | 7,345,864 | 141,425 | 1,979,506 | 536,593 | 638,033 | 64,158 | 102.5 | —50,080 | —263,463 | —302,153 |
| Denver & Rio Grande Western..... | 2,576 | 7,345,864 | 141,425 | 1,979,506 | 536,593 | 638,033 | 64,158 | 102.5 | —50,080 | —263,463 | —302,153 |
| Denver & Salt Lake..... | 232 | 115,492 | 5,484 | 130,145 | 43,856 | 49,024 | 2,525 | 111.6 | —15,047 | —39,200 | 11,204 |
| Denver & Salt Lake..... | 232 | 607,241 | 28,336 | 727,779 | 114,447 | 227,723 | 10,334 | 67.5 | 316,245 | 18,077 | 348,497 |
| Detroit & Mackinac..... | 242 | 909,323 | 2,489 | 77,948 | 10,844 | 13,778 | 1,014 | 71.0 | 22,620 | 19,936 | 14,867 |
| Detroit & Mackinac..... | 242 | 231,897 | 13,009 | 267,535 | 33,982 | 50,365 | 3,879 | 76.0 | 64,283 | 52,913 | 32,921 |
| Detroit & Toledo Shore Line..... | 50 | 300,761 | ..... | 302,911 | 33,756 | 21,408 | 8,491 | 48.5 | 156,080 | 125,221 | 75,863 |
| Detroit & Toledo Shore Line..... | 50 | 1,517,459 | ..... | 1,528,400 | 94,298 | 91,187 | 32,512 | 39.2 | 929,722 | 761,270 | 512,276 |
| Detroit & Toledo Shore Line..... | 472 | 650,816 | 237 | 677,783 | 73,915 | 81,308 | 12,160 | 48.8 | 346,845 | 224,474 | 224,474 |
| Detroit & Toledo Shore Line..... | 472 | 3,023,974 | 830 | 3,125,127 | 312,991 | 337,303 | 46,771 | 44.5 | 1,734,766 | 1,416,922 | 1,165,738 |
| Duluth, Missabe & Northern..... | 539 | 1,735,872 | 1,627 | 2,006,421 | 144,000 | 288,423 | 5,108 | 41.8 | 1,167,273 | 748,569 | 749,434 |
| Duluth, Missabe & Northern..... | 539 | 2,092,284 | 9,552 | 2,439,432 | 506,511 | 1,013,758 | 17,729 | 106.0 | —1,558,811 | —1,240,181 | —1,711,928 |
| Duluth, Missabe & Northern..... | 179 | 117,385 | 1,616 | 122,875 | 20,338 | 16,386 | 2,134 | 71.6 | 34,933 | 23,856 | 8,135 |
| Duluth, Missabe & Northern..... | 179 | 489,104 | 7,947 | 509,816 | 70,237 | 77,575 | 7,924 | 74.9 | 127,720 | 89,683 | 22,172 |
| Elgin, Joliet & Eastern..... | 434 | 1,656,301 | 1 | 1,903,227 | 163,741 | 405,848 | 14,771 | 69.2 | 585,638 | 436,381 | 325,980 |
| Elgin, Joliet & Eastern..... | 434 | 6,993,300 | 21 | 7,933,851 | 570,300 | 1,656,089 | 59,382 | 66.3 | 2,674,549 | 2,076,954 | 1,314,093 |
| Erie..... | 2,284 | 6,597,317 | 412,182 | 7,557,939 | 622,078 | 1,427,613 | 180,283 | 68.2 | 2,400,515 | 1,850,405 | 1,535,295 |
| Erie..... | 2,284 | 25,268,574 | 1,639,528 | 28,927,449 | 2,050,559 | 5,499,782 | 692,922 | 68.6 | 9,073,732 | 6,895,874 | 5,730,163 |
| New Jersey & New York..... | 45 | 18,999 | 45,049 | 66,082 | 4,979 | 13,635 | 458 | 105.9 | —3,902 | —11,009 | —25,718 |
| New Jersey & New York..... | 45 | 65,339 | 180,586 | 252,998 | 18,362 | 60,494 | 1,973 | 109.8 | —24,924 | —53,327 | —110,106 |
| New York, Susq. & Western..... | 225 | 301,087 | 23,187 | 337,456 | 27,015 | 30,895 | 4,645 | 59.0 | 138,466 | 106,620 | 63,063 |
| New York, Susq. & Western..... | 225 | 1,100,489 | 92,212 | 1,242,789 | 96,841 | 124,009 | 18,119 | 63.2 | 457,813 | 330,939 | 180,925 |
| Florida East Coast..... | 684 | 596,017 | 313,112 | 1,013,352 | 101,038 | 156,039 | 23,424 | 65.6 | 348,173 | 266,077 | 192,106 |
| Florida East Coast..... | 684 | 2,543,731 | 1,737,879 | 4,423,207 | 377,219 | 613,222 | 97,385 | 59.6 | 1,918,284 | 1,584,364 | 1,334,617 |
| Fort Smith & Western..... | 249 | 52,347 | 886 | 56,368 | 17,445 | 9,305 | 6,210 | 102.3 | —1,296 | —2,766 | —10,387 |
| Fort Smith & Western..... | 249 | 265,423 | 3,346 | 282,125 | 65,853 | 34,075 | 24,953 | 82.5 | 49,521 | 43,521 | 10,226 |
| Georgia Railroad..... | 329 | 302,051 | 14,191 | 344,482 | 30,334 | 60,885 | 19,782 | 74.5 | 87,739 | 72,683 | 77,128 |
| Georgia & Florida..... | 329 | 1,139,779 | 55,606 | 1,303,579 | 111,989 | 233,066 | 74,642 | 76.5 | 306,355 | 246,804 | 268,068 |
| Georgia & Florida..... | 407 | 89,902 | 2,270 | 96,223 | 25,213 | 19,374 | 9,268 | 101.3 | —1,238 | —9,051 | —10,305 |
| Georgia & Florida..... | 407 | 417,276 | 9,253 | 443,704 | 95,841 | 71,438 | 34,373 | 86.9 | 58,221 | 27,019 | 8,722 |
| Grand Trunk Western..... | 1,032 | 2,078,305 | 66,627 | 2,347,473 | 288,096 | 396,386 | 40,253 | 70.7 | 687,225 | 553,494 | 371,968 |
| Grand Trunk Western..... | 1,032 | 7,776,750 | 304,503 | 8,735,451 | 867,786 | 1,544,387 | 150,121 | 71.9 | 2,457,751 | 1,931,928 | 1,284,952 |
| Canadian Nat'l Lines in New Eng..... | 172 | 113,632 | 4,911 | 133,680 | 20,264 | 19,250 | 61,768 | 84.5 | 20,465 | 5,825 | —25,061 |
| Canadian Nat'l Lines in New Eng..... | 172 | 411,021 | 24,317 | 480,361 | 82,103 | 87,100 | 9,448 | 99.4 | 3,046 | —56,717 | —177,410 |
| Great Northern..... | 8,093 | 6,161,733 | 327,582 | 7,087,151 | 864,322 | 1,351,056 | 198,627 | 70.1 | 2,119,255 | 1,686,485 | 1,601,400 |
| Great Northern..... | 8,093 | 19,808,071 | 1,369,703 | 23,233,553 | 2,591,073 | 4,951,492 | 722,027 | 80.4 | 4,549,266 | 2,404,250 | 2,181,305 |

Continued on next left-hand page

Satisfactory Superheater Performance

*depends upon
these conditions*



Steam in superheater units travels 125 m. p. h.
Uneven internal surfaces at such high speeds would set up innumerable steam eddies, with a resultant pressure drop and unsafe superheater unit wall temperatures.

Elesco superheater units, whether new or REmanufactured from old units, are machine-die-forged to provide one metal structure throughout . . . with resultant full and smooth internal surfaces.

Use this exclusive REmanufacturing service to safely extend the life of your worn-out superheater units.



Superheaters
Feed Water Heaters
Exhaust Steam Injectors
Tangential Steam Dryers
Superheated Steam Pyrometers
American Throttles

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY INC.
60 East 42nd Street, NEW YORK
Peoples Gas Building, CHICAGO

Canada: THE SUPERHEATER COMPANY, LTD.
MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

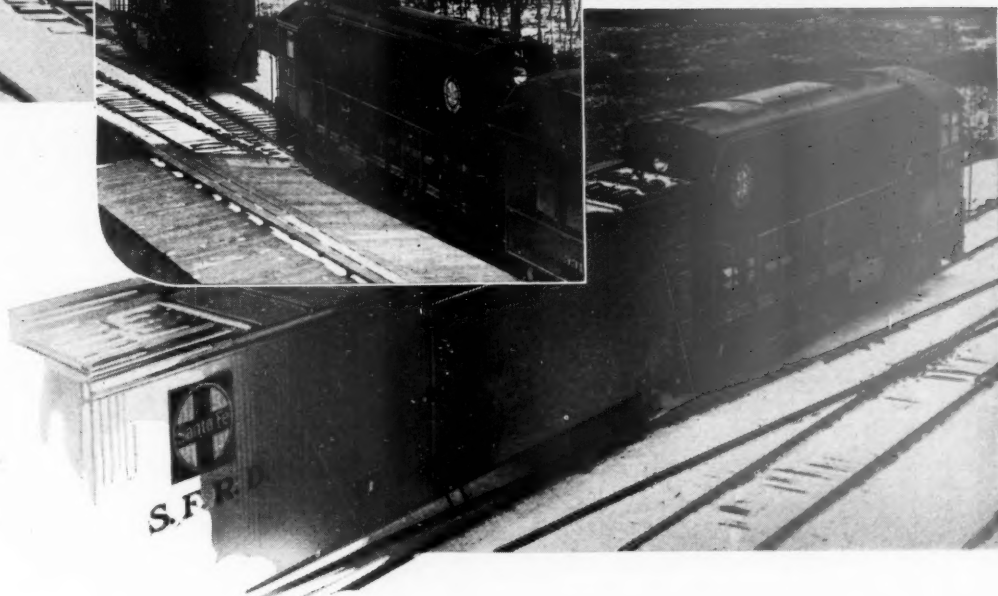
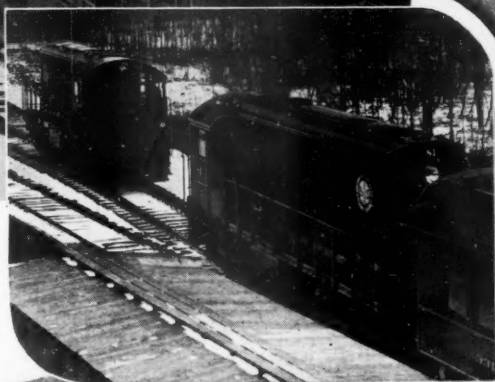
MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937—CONTINUED

| Name of road | Av. mileage operated during period | Operating revenues | | | Maintenance of way and equipment | | | Operating expenses | | | Net from railway operation | Net railway operating income | |
|---|------------------------------------|--------------------|-----------|--------------------|----------------------------------|-----------|-----------|--------------------|------------------|-------|----------------------------|------------------------------|-------------------------|
| | | Freight | Passenger | Total (inc. misc.) | Structures | Equip. | Way and | Traffic | Trans- portation | Total | | Operating income | After depreciation—1937 | Before depreciation—1936 |
| Green Bay & Western.....April | 234 | \$132,286 | \$554 | \$136,979 | \$33,627 | \$19,938 | \$6,470 | \$48,733 | \$112,713 | 82.2 | \$24,266 | \$13,675 | \$25,047 |
| Green Bay & Western.....4 mos. | 234 | 533,856 | 2,543 | 536,399 | 114,015 | 72,490 | 25,746 | 188,090 | 416,502 | 75.2 | 136,700 | 96,258 | 99,206 |
| Gulf & Ship Island.....April | 259 | 133,213 | 9,848 | 163,215 | 23,936 | 18,710 | 2,938 | 67,434 | 117,961 | 72.3 | 45,254 | 16,125 | 20,345 |
| Gulf & Ship Island.....4 mos. | 259 | 464,342 | 35,446 | 562,915 | 80,284 | 65,852 | 12,863 | 264,315 | 447,931 | 79.6 | 114,984 | 43,895 | 19,322 |
| Gulf, Mobile & Northern.....April | 936 | 676,735 | 24,747 | 725,743 | 81,522 | 89,978 | 36,876 | 174,276 | 419,003 | 57.7 | 306,740 | 165,542 | 184,914 |
| Gulf, Mobile & Northern.....4 mos. | 936 | 2,323,939 | 99,363 | 2,588,880 | 308,231 | 351,127 | 149,516 | 674,279 | 1,615,150 | 62.8 | 953,730 | 460,320 | 531,875 |
| Illinois Central.....April | 4,957 | 6,327,453 | 737,139 | 7,064,592 | 804,889 | 1,731,979 | 198,207 | 3,169,203 | 6,328,170 | 79.8 | 1,606,188 | 672,210 | 1,190,989 |
| Illinois Central.....4 mos. | 4,964 | 27,016,062 | 3,205,609 | 32,813,723 | 3,149,432 | 6,793,362 | 873,669 | 13,537,502 | 25,943,801 | 79.1 | 6,869,924 | 3,171,332 | 5,281,963 |
| Yazoo & Mississippi Valley.....April | 1,619 | 1,262,919 | 73,801 | 1,438,740 | 107,151 | 227,710 | 32,550 | 500,055 | 924,408 | 64.3 | 514,332 | 280,399 | 323,734 |
| Yazoo & Mississippi Valley.....4 mos. | 1,619 | 4,684,454 | 297,344 | 5,316,719 | 450,170 | 785,623 | 141,488 | 1,977,702 | 3,596,457 | 67.6 | 1,720,262 | 820,228 | 984,542 |
| Illinois Central System.....April | 6,576 | 7,590,372 | 810,940 | 9,373,098 | 1,140,051 | 2,589,689 | 230,757 | 3,669,258 | 7,252,578 | 77.4 | 2,120,520 | 961,609 | 1,523,723 |
| Illinois Central System.....4 mos. | 6,583 | 31,700,516 | 3,502,953 | 38,130,444 | 3,599,602 | 7,580,985 | 1,015,157 | 15,352,723 | 29,540,258 | 77.5 | 8,590,186 | 4,028,594 | 6,304,805 |
| Illinois Terminal.....April | 504 | 404,910 | 70,339 | 515,152 | 51,361 | 68,705 | 16,920 | 163,405 | 318,708 | 61.8 | 196,444 | 154,008 | 149,192 |
| Illinois Terminal.....4 mos. | 504 | 1,693,179 | 286,635 | 2,133,638 | 185,065 | 303,120 | 64,518 | 688,902 | 1,318,590 | 61.8 | 815,048 | 645,880 | 618,550 |
| Kansas City Southern.....April | 878 | 999,369 | 17,404 | 1,128,350 | 119,798 | 166,941 | 52,369 | 330,836 | 743,677 | 65.9 | 384,673 | 274,673 | 263,786 |
| Kansas City Southern.....4 mos. | 878 | 4,052,484 | 66,178 | 4,545,797 | 477,841 | 679,244 | 199,942 | 1,371,255 | 3,006,302 | 66.1 | 1,539,493 | 1,099,495 | 867,362 |
| Kansas, Oklahoma & Gulf.....April | 326 | 184,829 | 497 | 188,603 | 22,071 | 16,462 | 9,019 | 45,596 | 102,045 | 54.1 | 86,558 | 65,806 | 47,502 |
| Kansas, Oklahoma & Gulf.....4 mos. | 326 | 712,576 | 2,180 | 724,955 | 75,056 | 62,557 | 35,466 | 165,557 | 374,621 | 51.7 | 350,334 | 271,556 | 213,889 |
| Lake Superior & Ishpeming.....April | 156 | 210,609 | 749 | 211,358 | 24,432 | 26,737 | 749 | 48,452 | 107,112 | 42.2 | 146,502 | 126,544 | 141,345 |
| Lake Superior & Ishpeming.....4 mos. | 156 | 340,810 | 500 | 391,649 | 84,775 | 112,418 | 2,798 | 122,284 | 348,349 | 88.9 | 43,300 | 33,804 | 21,563 |
| Lehigh & Hudson River.....April | 96 | 175,267 | 76 | 175,978 | 15,304 | 25,233 | 4,225 | 55,812 | 108,285 | 61.5 | 67,693 | 34,127 | 15,069 |
| Lehigh & Hudson River.....4 mos. | 96 | 565,584 | 384 | 568,772 | 45,963 | 90,239 | 15,931 | 195,886 | 378,806 | 66.6 | 189,966 | 130,919 | 94,480 |
| Lehigh & New England.....April | 215 | 440,577 | 210 | 646,450 | 31,488 | 65,314 | 6,541 | 130,230 | 250,353 | 56.5 | 193,097 | 153,595 | 171,052 |
| Lehigh & New England.....4 mos. | 215 | 1,318,345 | 914 | 1,328,220 | 117,171 | 275,923 | 26,703 | 481,967 | 966,951 | 72.8 | 361,269 | 290,938 | 368,094 |
| Lehigh Valley.....April | 1,322 | 4,479,804 | 190,965 | 4,955,236 | 338,035 | 930,572 | 113,633 | 2,105,155 | 3,656,395 | 73.8 | 1,298,841 | 780,562 | 969,821 |
| Lehigh Valley.....4 mos. | 1,322 | 15,710,324 | 866,723 | 17,594,440 | 1,070,107 | 3,387,376 | 453,651 | 7,429,810 | 13,020,574 | 74.0 | 4,573,866 | 2,510,070 | 2,773,662 |
| Louisiana & Arkansas.....April | 606 | 491,772 | 10,259 | 521,844 | 71,139 | 76,389 | 29,739 | 143,855 | 342,458 | 65.6 | 179,386 | 140,657 | 125,773 |
| Louisiana & Arkansas.....4 mos. | 606 | 1,825,611 | 34,115 | 1,928,444 | 266,810 | 270,340 | 120,678 | 567,442 | 1,312,684 | 68.1 | 472,774 | 373,363 | 435,053 |
| Louisiana, Arkansas & Texas.....April | 255 | 110,329 | 234 | 115,462 | 22,044 | 11,087 | 4,802 | 42,728 | 86,696 | 75.1 | 28,766 | 3,640 | 10,766 |
| Louisiana, Arkansas & Texas.....4 mos. | 255 | 408,317 | 787 | 426,148 | 88,176 | 41,592 | 18,959 | 162,101 | 333,724 | 78.3 | 92,424 | 3,030 | 6,216 |
| Louisville & Nashville.....April | 4,940 | 6,487,767 | 546,519 | 7,646,244 | 783,938 | 1,709,185 | 177,248 | 2,613,965 | 5,597,337 | 73.2 | 2,048,907 | 1,402,587 | 1,853,055 |
| Louisville & Nashville.....4 mos. | 4,942 | 25,417,566 | 2,248,020 | 29,789,927 | 3,083,121 | 6,615,833 | 763,693 | 10,497,846 | 22,252,393 | 74.7 | 7,537,534 | 4,909,722 | 6,771,818 |
| Maine Central.....April | 1,009 | 981,985 | 71,714 | 1,145,043 | 171,093 | 178,860 | 12,024 | 354,447 | 760,494 | 66.4 | 384,549 | 252,166 | 295,798 |
| Maine Central.....4 mos. | 1,009 | 3,951,765 | 295,289 | 4,519,689 | 609,896 | 719,770 | 48,484 | 1,529,009 | 3,073,950 | 68.0 | 1,445,739 | 881,930 | 1,054,466 |
| Midland Valley.....April | 351 | 116,889 | 10 | 119,077 | 20,400 | 11,536 | 2,814 | 30,144 | 71,484 | 60.0 | 47,593 | 38,543 | 32,674 |
| Midland Valley.....4 mos. | 351 | 463,366 | 43 | 472,192 | 54,609 | 38,600 | 10,654 | 122,480 | 252,212 | 53.4 | 219,980 | 181,253 | 154,116 |
| Minneapolis & St. Louis.....April | 1,530 | 619,945 | 10,953 | 667,305 | 104,747 | 106,614 | 41,727 | 279,558 | 571,312 | 85.6 | 95,993 | 50,831 | 14,007 |
| Minneapolis & St. Louis.....4 mos. | 1,530 | 2,368,471 | 45,476 | 2,553,080 | 332,576 | 463,383 | 169,406 | 1,187,804 | 2,304,922 | 90.3 | 248,158 | 88,470 | —18,541 |
| Minneapolis, St. Paul & S. Marie.....April | 4,301 | 2,062,929 | 79,323 | 2,321,353 | 262,866 | 385,821 | 61,778 | 902,548 | 1,714,136 | 73.8 | 607,197 | 450,673 | 428,395 |
| Minneapolis, St. Paul & S. Marie.....4 mos. | 4,301 | 7,169,130 | 344,936 | 8,118,595 | 1,008,106 | 1,639,248 | 240,043 | 3,714,624 | 7,014,949 | 86.4 | 1,103,646 | 600,708 | 512,074 |
| Duluth, South Shore & Atlantic.....April | 549 | 226,788 | 14,656 | 262,515 | 37,877 | 39,448 | 4,910 | 87,406 | 179,635 | 68.4 | 82,880 | 61,457 | 71,955 |
| Duluth, South Shore & Atlantic.....4 mos. | 549 | 751,038 | 56,740 | 865,085 | 123,551 | 153,282 | 17,775 | 348,822 | 671,671 | 77.6 | 193,414 | 100,937 | 6,023 |
| Spokane International.....April | 163 | 64,282 | 1,241 | 71,782 | 16,445 | 7,875 | 2,221 | 22,334 | 57,739 | 80.4 | 14,043 | 4,986 | 6,623 |
| Spokane International.....4 mos. | 163 | 224,314 | 5,838 | 253,499 | 52,756 | 26,935 | 8,130 | 94,234 | 205,410 | 81.0 | 48,089 | 14,543 | 21,091 |
| Mississippi Central.....April | 150 | 76,343 | 1,988 | 80,734 | 17,130 | 11,245 | 7,102 | 21,040 | 61,995 | 76.8 | 18,739 | 13,838 | 68,674 |
| Mississippi Central.....4 mos. | 150 | 286,711 | 8,188 | 304,303 | 71,776 | 46,739 | 27,100 | 83,070 | 249,735 | 82.1 | 54,586 | 35,187 | 10,656 |
| Missouri-Arkansas.....April | 364 | 92,550 | 1,900 | 99,590 | 21,414 | 11,118 | 6,172 | 35,154 | 78,376 | 78.7 | 21,214 | 17,330 | 23,899 |
| Missouri-Arkansas.....4 mos. | 364 | 339,325 | 4,707 | 366,249 | 100,893 | 44,460 | 23,183 | 135,754 | 321,562 | 87.8 | 44,667 | 7,503 | 8,459 |
| Missouri-Illinois.....April | 205 | 117,821 | 549 | 120,271 | 27,673 | 12,803 | 2,390 | 35,841 | 84,964 | 70.6 | 35,307 | 14,323 | 5,675 |
| Missouri-Illinois.....4 mos. | 205 | 466,846 | 2,328 | 476,625 | 90,140 | 47,370 | 10,789 | 146,510 | 318,085 | 66.7 | 158,540 | 74,985 | 17,353 |
| Missouri-Kansas-Texas Lines.....April | 3,293 | 2,143,036 | 182,057 | 300,228 | 429,245 | 120,214 | 11,118 | 936,213 | 1,940,688 | 75.6 | 626,533 | 465,311 | 371,107 |
| Missouri-Kansas-Texas Lines.....4 mos. | 3,293 | 8,224,773 | 717,190 | 9,868,019 | 1,136,510 | 1,559,432 | 484,200 | 3,762,616 | 7,515,136 | 76.2 | 2,352,883 | 1,853,457 | 2,091,772 |
| Missouri Pacific.....April | 7,171 | 6,370,494 | 437,286 | 7,414,128 | 1,110,857 | 1,509,575 | 255,515 | 2,667,188 | 5,884,795 | 79.4 | 1,529,333 | 582,525 | 945,616 |
| Missouri Pacific.....4 mos. | 7,171 | 26,799,756 | 1,818,650 | 31,062,730 | 3,773,262 | 5,898,129 | 996,602 | 11,589,076 | 23,528,818 | 75.9 | 7,473,912 | 3,396,810 | 4,851,569 |

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Five of these units were recently delivered to the Birmingham Southern.

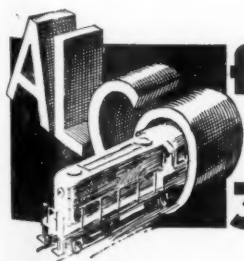


1800 or 900

HORSEPOWER

These 900 H. P. Supercharged Diesel Locomotives are all equipped with full multiple-unit control. Two of these locomotives may be coupled together and operated from a single control position, thereby making an 1800 H. P. Transfer Locomotive. And in a few minutes time they can be disconnected, thereby making two 900 H. P. Switching Locomotives.

The Alco Diesel Locomotive has materially increased its flexibility and economy. For you now can get much more work out of the total horsepower bought.



AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET · NEW YORK · N. Y.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937—CONTINUED

| MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937—CONTINUED | | | | | | | | | | | | | | |
|--|------------------------------------|--------------------|------------|--------------------|--------------------|--------------------------|-----------|-----------------|----------------------------|------------------------------|------------|------------------|-------------------------|--------------------------|
| Name of road | Av. mileage operated during period | Operating revenues | | | Operating expenses | | | Operating ratio | Net from railway operation | Net railway operating income | | | | |
| | | Freight | Passenger | Total (inc. misc.) | Way and structures | Maintenance of equipment | Traffic | | | Trans- portation | Total | Operating income | After depreciation—1937 | Before depreciation—1936 |
| Gulf Coast Lines | 1,763 | \$1,569,038 | \$43,658 | \$1,679,511 | \$194,120 | \$203,042 | \$45,827 | \$419,323 | 54.32 | \$767,274 | \$691,040 | \$533,877 | \$178,802 | \$569,160 |
| Gulf Coast Lines | 1,763 | 6,525,407 | 167,450 | 6,954,574 | 720,385 | 816,956 | 186,513 | 1,747,812 | 52.79 | 3,283,249 | 2,982,337 | 2,203,156 | 803,124 | 2,346,202 |
| Gulf Coast Lines | 1,763 | 929,611 | 74,114 | 1,117,652 | 153,266 | 202,213 | 31,217 | 505,191 | 85.43 | 162,821 | 101,309 | 24,845 | 18,666 | 6,535 |
| International Great Northern | 1,154 | 3,639,505 | 353,715 | 4,423,404 | 582,069 | 819,106 | 125,666 | 1,894,573 | 82.89 | 756,866 | 514,514 | 21,873 | 2,815 | 150,033 |
| International Great Northern | 1,154 | 1,052,058 | 29,574 | 1,146,315 | 140,187 | 192,603 | 42,958 | 376,389 | 70.2 | 341,771 | 279,948 | 204,286 | 64,964 | 254,604 |
| Mobile & Ohio | 1,194 | 3,675,736 | 113,792 | 4,019,951 | 478,244 | 700,046 | 171,125 | 1,499,212 | 75.2 | 984,680 | 749,231 | 496,575 | 162,819 | 697,934 |
| Mobile & Ohio | 1,199 | 270,227 | 812 | 273,996 | 38,586 | 20,397 | 445 | 68,181 | 47.5 | 142,642 | 105,231 | 32,601 | 101,154 | 38,113 |
| Monongahela | 1,171 | 1,577,776 | 3,396 | 1,595,944 | 167,483 | 123,021 | 1,772 | 349,500 | 41.0 | 940,949 | 800,271 | 470,389 | 485,660 | 492,423 |
| Montour | 56 | 160,489 | ..... | 161,991 | 10,370 | 42,629 | 1,226 | 41,128 | 62.8 | 60,185 | 34,185 | 70,835 | 65,989 | 84,952 |
| Montour | 56 | 706,545 | ..... | 712,869 | 43,794 | 159,092 | 4,354 | 200,315 | 61.7 | 273,342 | 188,822 | 269,493 | 240,039 | 316,503 |
| Nashville, Chattanooga & St. Louis | 1,117 | 1,111,924 | 96,598 | 1,336,816 | 151,014 | 260,941 | 63,699 | 485,921 | 76.7 | 310,871 | 228,654 | 199,553 | 64,395 | 242,171 |
| Nashville, Chattanooga & St. Louis | 1,120 | 4,190,731 | 425,276 | 5,189,353 | 601,388 | 1,098,314 | 261,023 | 1,941,588 | 80.3 | 1,021,241 | 695,643 | 632,557 | 293,684 | 801,625 |
| Nevada Northern | 165 | 57,816 | 1,924 | 64,941 | 8,571 | 15,383 | 3,898 | 11,469 | 46.1 | 34,987 | 25,617 | 26,896 | 13,071 | 32,836 |
| Nevada Northern | 165 | 198,213 | 6,390 | 225,309 | 34,622 | 15,383 | 3,898 | 46,505 | 52.4 | 107,338 | 73,242 | 78,013 | 55,166 | 101,814 |
| New York Central | 11,219 | 22,222,954 | 4,917,298 | 30,677,027 | 2,930,703 | 6,472,966 | 568,973 | 11,222,400 | 74.0 | 7,967,661 | 5,519,012 | 4,205,629 | 3,391,596 | 5,539,712 |
| New York Central | 11,220 | 91,223,247 | 20,346,888 | 124,701,645 | 11,892,569 | 25,691,614 | 2,213,315 | 46,679,283 | 74.2 | 32,132,270 | 22,616,175 | 17,389,567 | 12,167,585 | 22,723,348 |
| Pittsburgh & Lake Erie | 233 | 1,857,951 | 51,427 | 1,967,033 | 155,817 | 817,019 | 27,172 | 641,732 | 88.0 | 236,548 | 91,438 | 246,365 | 406,343 | 391,745 |
| Pittsburgh & Lake Erie | 233 | 7,663,013 | 229,212 | 8,145,728 | 584,013 | 3,171,311 | 109,759 | 2,561,165 | 83.2 | 1,370,531 | 733,294 | 1,412,423 | 1,179,381 | 1,986,063 |
| New York, Chicago & St. Louis | 1,704 | 3,987,811 | 67,946 | 4,055,757 | 397,487 | 556,108 | 119,736 | 1,193,373 | 67.2 | 1,170,495 | 893,529 | 616,390 | 817,100 | 750,463 |
| New York, Chicago & St. Louis | 1,704 | 14,319,383 | 258,104 | 15,024,161 | 1,470,975 | 2,311,636 | 472,424 | 4,861,248 | 64.2 | 5,371,551 | 4,261,235 | 3,078,920 | 2,832,684 | 3,611,577 |
| New York, New Haven & Hartford | 2,033 | 4,457,600 | 2,083,175 | 7,311,892 | 902,988 | 1,189,930 | 116,323 | 2,659,251 | 72.6 | 2,004,012 | 1,504,012 | 893,267 | 432,531 | 1,173,703 |
| New York, New Haven & Hartford | 2,033 | 16,222,564 | 8,315,988 | 27,566,605 | 2,763,578 | 4,688,987 | 445,150 | 10,337,133 | 72.7 | 7,530,135 | 5,530,135 | 3,112,965 | 1,189,323 | 4,250,499 |
| New York Connecting | 20 | 958,538 | ..... | 1,005,449 | 42,428 | 30,102 | ..... | 111,173 | 18.8 | 816,913 | 667,013 | 577,726 | 476,277 | 577,726 |
| New York Connecting | 20 | 576,776 | 4,998 | 632,454 | 40,109 | 138,553 | 14,763 | 279,640 | 79.4 | 130,197 | 77,517 | 53,282 | 303,432 | 77,847 |
| New York, Ontario & Western | 576 | 2,077,049 | 178,073 | 2,255,122 | 187,965 | 500,093 | 48,435 | 1,114,190 | 83.8 | 373,520 | 167,095 | 15,484 | 2,319,955 | 112,299 |
| New York, Ontario & Western | 576 | 7,459,539 | 789,294 | 8,514,855 | 856,594 | 1,504,693 | 333,979 | 1,701,509 | 56.3 | 3,452,627 | 2,200,564 | 2,590,210 | 10,098,484 | 12,643,015 |
| Norfolk & Western | 834 | 426,673 | 6,072 | 451,321 | 74,729 | 53,258 | 23,788 | 154,009 | 54.7 | 14,573,564 | 9,888,116 | 11,082,616 | 10,098,484 | 12,643,015 |
| Norfolk Southern | 834 | 1,439,506 | 25,802 | 1,539,131 | 285,846 | 203,630 | 89,362 | 567,556 | 72.2 | 125,541 | 91,348 | 63,180 | 8,293 | 74,054 |
| Norfolk Southern | 834 | 4,514,855 | 321,757 | 5,261,164 | 655,837 | 1,262,207 | 179,488 | 1,883,147 | 82.8 | 944,971 | 367,675 | 703,354 | 399,768 | 971,667 |
| Northern Pacific | 6,726 | 16,858,309 | 1,267,574 | 19,848,806 | 2,004,172 | 4,685,006 | 643,772 | 8,079,420 | 84.5 | 3,068,292 | 795,710 | 2,239,235 | 694,822 | 3,312,919 |
| Northwestern Pacific | 351 | 196,362 | 63,799 | 287,658 | 55,086 | 53,939 | 4,245 | 168,872 | 103.1 | 8,784 | 24,030 | 31,825 | 12,847 | 18,506 |
| Northwestern Pacific | 351 | 803,448 | 248,107 | 1,155,892 | 213,380 | 211,696 | 16,720 | 640,588 | 98.6 | 16,276 | 45,306 | 51,726 | 48,216 | 27,557 |
| Oklahoma City-Ada-Atoka | 132 | 43,756 | 417 | 46,561 | 16,020 | 1,167 | 759 | 11,167 | 67.6 | 15,071 | 11,858 | 5,160 | 11,047 | 5,167 |
| Oklahoma City-Ada-Atoka | 132 | 157,895 | 1,650 | 168,934 | 51,086 | 4,408 | 3,072 | 44,882 | 66.2 | 57,024 | 45,771 | 19,179 | 68,944 | 19,208 |
| Oklahoma City-Ada-Atoka | 132 | 29,941,962 | 5,841,668 | 35,491,403 | 4,065,354 | 8,335,276 | 667,401 | 13,628,639 | 74.1 | 10,223,645 | 6,381,202 | 6,097,230 | 7,742,220 | 8,190,637 |
| Oklahoma City-Ada-Atoka | 132 | 117,487,776 | 23,537,843 | 154,189,773 | 16,432,236 | 34,350,109 | 2,661,982 | 54,948,881 | 75.6 | 37,574,649 | 23,985,841 | 22,699,620 | 21,461,410 | 30,871,998 |
| Pennsylvania | 396 | 2,267,033 | 5,146,239 | 7,774,042 | 282,733 | 1,672,364 | 69,570 | 3,915,773 | 87.6 | 966,355 | 171,633 | 439,709 | 44,630 | 48,955 |
| Long Island | 412 | 282,091 | 126,093 | 429,892 | 138,054 | 102,299 | 10,752 | 260,412 | 125.5 | 539,377 | 190,485 | 266,679 | 149,361 | 223,333 |
| Pennsylvania-Reading Seashore Lines | 412 | 1,036,122 | 479,049 | 1,535,482 | 329,124 | 589,040 | 36,851 | 1,046,060 | 118.1 | 1,882,237 | 589,609 | 797,600 | 701,281 | 814,268 |
| Pennsylvania-Reading Seashore Lines | 412 | 2,767,814 | 72,884 | 2,986,027 | 347,220 | 589,644 | 66,431 | 1,010,189 | 70.8 | 426,704 | 235,578 | 575,629 | 656,287 | 788,719 |
| Pere Marquette | 2,115 | 10,221,458 | 276,460 | 11,076,116 | 1,280,197 | 2,240,964 | 262,105 | 3,964,113 | 73.4 | 2,941,370 | 2,197,874 | 1,881,862 | 1,837,427 | 2,734,115 |
| Pittsburgh & Shawmut | 100 | 18,389 | 332 | 19,367 | 14,816 | 15,008 | 1,293 | 10,858 | 235.9 | 26,324 | 28,404 | 12,785 | 3,738 | 8,507 |
| Pittsburgh & Shawmut | 100 | 244,574 | 1,570 | 246,144 | 58,602 | 81,237 | 4,979 | 76,292 | 94.9 | 12,549 | 3,342 | 22,832 | 32,832 | 40,070 |
| Pittsburgh & Shawmut | 138 | 319,481 | ..... | 336,235 | 61,847 | 181,933 | 18,811 | 68,441 | 75.7 | 453,889 | 342,204 | 91,815 | 132,652 | 113,903 |
| Pittsburgh & West Virginia | 138 | 1,385,916 | 6,440 | 1,462,015 | 208,153 | 334,458 | 75,268 | 295,220 | 69.0 | 1,008,126 | 748,419 | 472,864 | 441,766 | 559,863 |
| Pittsburgh & West Virginia | 138 | 77,182 | 15 | 78,326 | 15,268 | 21,485 | 1,476 | 26,272 | 90.4 | 7,484 | 4,119 | 469 | 3,454 | 1,381 |
| Pittsburgh & West Virginia | 138 | 364,581 | 55 | 370,304 | 56,335 | 81,335 | 5,756 | 135,774 | 82.2 | 65,891 | 51,681 | 23,406 | 26,930 | 30,871 |
| Pittsburg, Shawmut & Northern | 1,452 | 5,227,526 | 1,235,147 | 6,462,673 | 356,363 | 980,576 | 74,243 | 2,000,126 | 62.9 | 2,146,666 | 1,611,440 | 1,598,277 | 1,159,277 | 1,853,866 |
| Pittsburg, Shawmut & Northern | 1,452 | 19,623,012 | 1,235,147 | 21,804,679 | 1,373,176 | 3,970,677 | 295,939 | 7,849,655 | 66.0 | 7,422,356 | 5,419,758 | 5,475,784 | 4,227,817 | 6,510,147 |
| Reading | 1,452 | 402,610 | 239,740 | 804,412 | 54,848 | 124,091 | 10,106 | 301,402 | 68.2 | 255,774 | 202,228 | 135,581 | 26,529 | 104,337 |
| Reading | 1,452 | 1,581,692 | 1,132,109 | 3,328,689 | 229,090 | 525,955 | 10,106 | 1,263,691 | 68.6 | 1,044,390 | 786,248 | 527,727 | 179,121 | 631,388 |
| Richmond, Fredericksburg & Potomac | 117 | 402,610 | 239,740 | 804,412 | 54,848 | 124,091 | 10,106 | 301,402 | 68.2 | 255,774 | 202,228 | 135,581 | 26,529 | 104,337 |
| Richmond, Fredericksburg & Potomac | 117 | 1,581,692 | 1,132,109 | 3,328,689 | 229,090 | 525,955 | 10,106 | 1,263,691 | 68.6 | 1,044,390 | 786,248 | 527,727 | 179,121 | 631,388 |

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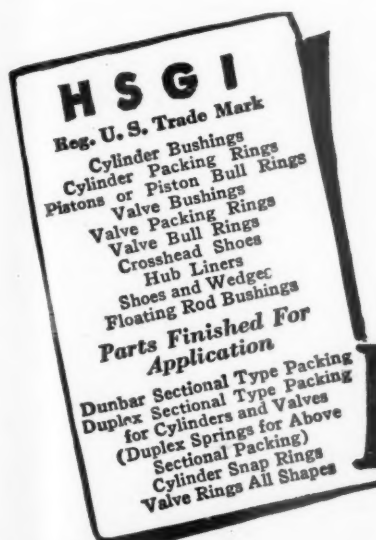


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THE huge amount of capital invested in the locomotives on American railroads can be well protected by equipping them with HSGI wear resisting vital parts.

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HUNT-SPILLER

GUN IRON

Air Furnace

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1937—CONTINUED

| Name of road | Av. mileage operated during period | Operating revenues | | | Operating expenses | | | Net from railway operation | Net railway operating income | | | |
|--|------------------------------------|--------------------|-----------|--------------------|--------------------|-----------------------|----------|----------------------------|------------------------------|------------------|--------------------------|---------------------------|
| | | Freight | Passenger | Total (inc. misc.) | Way and structures | Maintenance of equip- | Traffic | | Trans- portation | Operating income | After depreciation— 1937 | Before depreciation— 1936 |
| Rutland | 407 | \$225,458 | \$26,400 | \$251,858 | \$41,875 | \$61,618 | \$10,901 | \$143,115 | 88.1 | \$36,623 | \$20,705 | \$26,265 |
| St. Louis-San Francisco | 4,926 | 13,565,251 | 1,192,725 | 16,262,388 | 2,401,215 | 3,588,931 | 447,523 | 6,325,775 | 83.1 | 2,754,012 | 1,446,275 | 2,494,301 |
| St. Louis, San Francisco & Texas | 261 | 113,056 | 377 | 113,886 | 26,212 | 43,416 | 8,120 | 54,434 | 92.8 | 8,504 | —25,492 | — |
| St. Louis Southwestern Lines | 1,749 | 6,786,210 | 1,068,887 | 7,178,932 | 1,083,819 | 1,283,234 | 313,894 | 2,305,984 | 73.9 | 1,875,957 | 696,046 | 897,620 |
| Seaboard Air Line | 4,307 | 3,119,456 | 516,719 | 4,025,203 | 527,256 | 712,805 | 161,442 | 1,400,860 | 74.9 | 1,011,511 | 569,162 | 299,236 |
| Southern Railway | 6,639 | 7,027,790 | 815,314 | 8,609,007 | 1,053,227 | 1,598,184 | 149,901 | 2,596,859 | 69.5 | 1,989,831 | 1,397,750 | 1,828,805 |
| Alabama Great Southern | 315 | 560,131 | 46,278 | 646,983 | 77,405 | 148,081 | 11,460 | 188,755 | 69.1 | 199,832 | 134,540 | 157,755 |
| Cinn., New Orleans & Texas Pacific | 336 | 1,352,474 | 104,957 | 1,546,401 | 174,423 | 257,128 | 23,912 | 364,801 | 56.7 | 747,935 | 474,657 | 567,700 |
| Georgia Southern & Florida | 397 | 128,278 | 47,916 | 206,384 | 33,906 | 42,311 | 1,923 | 82,728 | 82.7 | 35,768 | 12,220 | 186 |
| New Orleans & Northeastern | 204 | 932,334 | 282,284 | 929,323 | 129,613 | 154,933 | 7,545 | 345,498 | 73.2 | 248,737 | 156,652 | 184,038 |
| Northern Alabama | 100 | 60,770 | 1,501 | 62,280 | 12,720 | 1,422 | 1,272 | 19,476 | 58.1 | 26,929 | 8,467 | 8,516 |
| Southern Pacific | 8,771 | 10,883,979 | 1,650,478 | 13,744,895 | 1,437,387 | 2,537,000 | 355,673 | 5,996,391 | 79.6 | 12,878,909 | 1,671,350 | 1,511,651 |
| Texas & New Orleans | 4,429 | 3,243,501 | 278,172 | 3,521,673 | 667,572 | 714,986 | 118,972 | 1,307,535 | 73.1 | 4,323,076 | 2,458,971 | 2,173,353 |
| Spokane, Portland & Seattle | 946 | 617,343 | 39,770 | 711,718 | 20,933 | 91,705 | 18,518 | 436,603 | 95.9 | 24,908 | —4,044 | —2,240 |
| Tennessee Central | 286 | 185,203 | 4,919 | 190,127 | 28,829 | 34,031 | 9,884 | 255,263 | 64.0 | 256,244 | 147,542 | 79,665 |
| Texas & Pacific | 1,948 | 2,189,916 | 209,993 | 2,592,699 | 252,057 | 474,720 | 79,154 | 752,951 | 65.6 | 892,351 | 550,887 | 369,428 |
| Texas Mexican | 162 | 120,104 | 355 | 120,459 | 17,816 | 18,953 | 3,587 | 30,417 | 67.4 | 3,228,085 | 1,950,227 | 1,539,479 |
| Toledo, Peoria & Western | 239 | 191,512 | ..... | 193,824 | 34,605 | 15,291 | 18,224 | 49,769 | 68.6 | 155,374 | 72,447 | 104,020 |
| Union Pacific System | 9,918 | 10,056,597 | 1,210,870 | 12,373,360 | 2,092,603 | 2,743,179 | 378,528 | 4,215,642 | 68.3 | 2,428,085 | 1,539,479 | 2,339,747 |
| Utah | 111 | 52,489 | ..... | 52,534 | 14,787 | 23,569 | 412 | 15,736 | 112.6 | 6,614 | —10,541 | —643 |
| Virginian | 618 | 1,356,206 | 3,391 | 1,359,597 | 76,719 | 177,456 | 1,705 | 141,912 | 77.2 | 122,690 | 67,937 | 85,774 |
| Wabash | 2,433 | 3,528,844 | 183,727 | 3,973,127 | 493,470 | 733,955 | 150,358 | 1,468,385 | 43.5 | 3,620,625 | 3,080,758 | 2,709,200 |
| Ann Arbor | 293 | 329,376 | 2,797 | 342,242 | 30,440 | 82,682 | 12,321 | 139,255 | 78.4 | 723,712 | 618,785 | 713,805 |
| Western Maryland | 882 | 1,393,447 | 6,236 | 1,447,836 | 206,948 | 328,441 | 39,709 | 358,177 | 75.7 | 964,913 | 416,146 | 612,431 |
| Western Pacific | 1,207 | 4,655,645 | 121,717 | 4,906,346 | 473,858 | 324,676 | 56,447 | 522,798 | 73.7 | 4,268,742 | 2,148,213 | 1,728,662 |
| Wheeling & Lake Erie | 512 | 1,186,531 | 1,581 | 1,256,881 | 177,652 | 305,398 | 32,087 | 399,025 | 81.0 | 211,488 | 143,674 | 109,927 |
| | 512 | 5,210,552 | 7,208 | 5,446,152 | 551,715 | 1,164,112 | 130,068 | 1,605,510 | 79.3 | 291,802 | 211,488 | 223,400 |
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